

A SHORT
ESSAY
On the OPERATION of
LITHOTOMY:

AS it is PERFORMED

By the NEW METHOD
Above the *OS PUBIS*.

By JOHN MIDDLETON, M.D.

To which is Added,

A LETTER relating to the same Subject,
from Mr. MACGILL of *Edinburgh*, to
Dr. DOUGLAS.

L O N D O N:

Printed for G. STRAHAN, at the *Golden-Ball*, over-against
the *Royal-Exchange* in *Cornhill*. M.DCC.XXVII.



ERRATA.

Several Errors of the Press have escaped, by Reason of the Author's living at so great a Distance; but when the following are corrected, it is hoped none will remain that can any way obscure or perplex the Sense.

Page 2. Line 8. dele *Tab. 1st.* P. 6. l. 19. read *Disorder*, and dele: after *wound*. P. 8. l. 5. r. *relax'd.* Ib. l. 12. dele; after *gently*. P. 11. l. 22. r. *obstructing*. P. 13. l. 20. for *fitted* r. *injected*. P. 14. l. 3. and 8. r. *forcipes*. P. 21. l. 2. dele *a.* Ib. 13. dele *so*. P. 22. l. 8. r. *stopr.* P. 24. l. 20. r. *regularly, well digested*. P. 25. l. 12. r. *Flesh*. P. 29. l. 14. r. *Eschar*, P. 31. l. 13. r. *Asthma*, and gave. P. 32. l. 13. r. *full Scope*. P. 46. l. 6 and 7. r. *Sanguineæ*. P. 54. l. 8. r. *Perinæo*. P. 55. l. 8. r. *Bladder, the lower way, is evid.* P. 56. l. 17. r. *upwards from the Os*. P. 62. l. 26. r. *broken. On such an Occasion I have.*

P R E F A C E.



HO' I had no Thoughts of Prefacing, yet some Things have happen'd that make it necessary.

The Reader is to be inform'd, that there was another Figure intended to be publish'd, (viz. of the Urinary Passages of William Phillips) but an Accident having prevented it, there is a Description of it in Pag. 34. taken from the Cut, which will represent it to the Mind of an Anatomist almost as well as if the Figure were there.

Dr. Douglas, being appriz'd of the printing of this Essay, has done me the Favour to subjoin a Letter from an ingenious Gentleman at Edinburgh, giving some Account of his Practice in this Operation, and his Observations upon it. The Author whereof, I hope, will observe, that the Freedoms I take in mentioning the Cautions that are necessary in the Method of performing the Operation, were not intended to interfere with his Sentiments, having never seen his Letter, till last Post brought it to me in Print. What I have said on that Head, seems to me to be highly reasonable, from the nicest Observation, and the best establish'd Principles; and I have urg'd it the stronger, to guard against the Prejudices that have been rais'd by another Author, who has labour'd under great Darkness and Mistake,

P R E F A C E.

Mistake, in almost every Particular that he has mentioned on the Subject.

It is not proper for me to judge whether I have contributed any thing towards the clearing of this Subject. If I have, 'tis all that I aim at; if not, there may still be some Hints given which may be improv'd by a more masterly Hand, who, perhaps, might not of himself have fallen into that Way of thinking. I am sure that such a One can never be more unexpectedly engag'd in this Subject than I have been, who, from a great Dislike, and even a Contempt of the High Operation, on a farther Enquiry, and the strictest Observation of Matters of Fact, have had my Objections solv'd with great Clearness, the Strength of the Argument appearing plainly on the other Side of the Question. One wou'd think that such Gentlemen as have a thorough Knowledge of the Structure of the Parts, must of Necessity perceive the Advantages of this Method; and if so, they had better yield to Conviction than struggle against it. They have a noble Example in the learned Plempius (as great a Man as any of them) who, after he had labour'd hard in his Differences with Dr. Harvey about the Circulation of the Blood, at last generously own'd; Primum mihi hoc inventum non placuit, quod voce & scripto publice testatus sum; sed dum postea ei refutando & explodendo vehementius incumbo, refutor ipse & explodor; adeo sunt rationes ejus non persuadentes sed cogentes. Plemp. Fundam. Med. lib. 2. cap. 7.



A SHORT
E S S A Y
O N T H E
O P E R A T I O N
O F
L I T H O T O M Y, &c.



To perform this Operation, an Incision is to be made on the *Regio Pubis*, and the *Musculi Recti* are to be divided at their Extremities, where they are inserted in the *Os Pubis*, the *Linea Alba* is cut through to lay the Bladder bare, in the Fore-part of which an Incision is to be made, in order to come at the Stone, the Extraction of which is intended for the Relief of the Patient.

It is not necessary to spend Time on the Structure of the Integuments, (*viz.* the Skin and Fat, the *Musculi Recti*, and the *Linea Alba*) which are sufficiently describ'd by every

late Anatomist; and the Substance and Connexions of the Bladder being most accurately describ'd by a late (a) Author, in a Treatise of the *Urinary Passages* (which, with due Respect to all others, is much preferable to every thing that has yet appear'd on that Subject:) I refer the Reader to it for his farther Satisfaction, and what is wanting in it for my Purpose, is sufficiently supply'd by the Explication of the annex'd Figure, Tab. 1st, which gives a distinct View of the most considerable Parts concern'd in this Operation: I am oblig'd to Dr. *James Douglas* for this Table, who made me a Present of it, for which I take this Opportunity to make my publick Acknowledgments, as well as for his communicative Disposition, and singular Civilities in spending much Time to shew me his Preparations, which are a Treasure of inestimable Value. Many others that are curious in Anatomy owe the same Favours to him, of which they ought to be the more sensible, that it is not in the Power of any Man on Earth, but himself, to oblige them to so great a Degree, in that Way.

SUPPOSING then the Anatomy of the Parts to be sufficiently understood, I proceed to consider the Precautions that are necessary before the Operation; the successful Performance of which depends much on the previous Regimen to be observ'd by the Patient, who having most commonly suffer'd very much from repeated Nephritic Paroxysms, some of the small Glands of the Kidneys are perpetually more or less inflam'd, and their Excretory Tubes, the (b) *Pelvis*, the *Ureters*, and the internal Coat of the Bladder suffer almost

(a) Dr. Rutty.

(b) The common Receptacle of the Urine in the Kidneys.

daily from the Abrasion of fabulous and gritty Substances so frequently passing their Channels, and rubbing their tender Coats, so as to excoriate some Places, and bruise others, often occasioning Suppurations, as may be observ'd by the frequent Discharges of purulent Matter, which keeps the Patient in a perpetual Symptomatic Fever, which at last degenerates into a Sort of Hætic, which continues low, till by some Accident the Stone irritating the internal Coat of the Bladder, the Inflammation rises, and, by Consent of the Parts, is communicated to the Ureters and the Kidneys, the small Glands of which being tumified, obstruct the little Vessels, and deny a Passage to the circulating Fluid, which prevents the due Secretion of the Urine, and begins a new Paroxysm, the Blood being always too well stor'd with Fuel to encrease it, till the Fever rises with intense Heat, and Excess of Pain, and Torture; the adjacent Parts suffering violently by the Inflammation, and the whole Animal OEconomy being in the greatest Disorder, which diminishes by Degrees, as the obstructed Matter makes its Way through the small excretory Ducts of the Kidneys, into the *Pelvis*, and so down the *Ureters*, &c.

THE Tension being gone, the Fibres relax, and return to their natural State, or near it; the Fever abates, and the Cause of Inflammation being remov'd, the Effect ceases, till some new Accident or Error in Regimen bring on another Paroxysm, and then the Symptoms run the same Circle as before, till the miserable Patient, being extenuated and worn out with Pain and Torture, perishes in a slow Symptomatic Fever, which still hangs about him, by the Mixture of purulent Particles with the Blood from the ulcerated Kidneys, or Bladder.

To avoid this dismal End, People in such unhappy Circumstances fly for Refuge to the Operation ; which, if perform'd with Success, for the most Part, relieves them for ever after, especially in young (*a*) Subjects, it being but seldom that new Stones are form'd in them, or that Nephritic Symptoms run so high, after the Extraction.

THO' there may be many complicated Cases, that require great Attention and mature Consultation ; yet I believe in general, the genuine Nephritic Symptoms, explain'd in this short View, are enough to point out the most reasonable Method to prepare the Body for the Operation, which seems to consist in allaying the præter-natural Heat of the Blood, and preventing its Obstructions in the small Vessels, in carrying off, by frequent gentle Purges, the superfluous Humours and viscid Lentor, with which it has been loaded in the repeated Paroxysms, and in endeavouring to restore it to its native Simplicity, that its natural Balsam, uninflam'd, and freed from irritating Particles, may afford its healing Virtues to the little Ulcers already in the Urinary Passages, as well as to the large Ulcer which is to be produc'd by the Incision, in the Operation.

IN order to this, the Patient should lose some Blood, to abate the Inflammation, and give a sudden Check to the Symptoms, by making room for a freer Circulation in the small Vessels ; and should insist on a cooling, diluting Diet, abstaining from Flesh Meats, if possible, altogether, or at

(*a*) *Vide* Ratty's *Treatise of the Urinary Passages*, p. 37.

least using only such as are of the tenderest Kind, and that rather in Broths than in Substance; as Chick-broth, Veal-broth, &c. which, with Water-gruel, Sagoe, Eggs, Butter, such Roots and Herbs as are in Season, and all the Variety of Dishes that may be made with Milk, seem to afford the most proper, and, indeed, sufficient Nourishment for one in such Circumstances.

THE common Drink may be fair Water, with a Toast in it, or a Ptisan (or Tea) made with Refrigerating Herbs, and a little Cinnamon and Liquorice, and any of the Teas in Use, may be drank at liberty. In case of Heat of Urine, or pricking Pains in the Bladder, or Symptoms of Excoriation in the Urinary Passages; Almond Milk, with a few of the larger cold Seeds, will, probably, give Ease. I have seen a Tea made with Linseed, and sweeten'd with Sugar, and sometimes a little Milk put to it, have surprizing Effects in this Case, where every thing else has fail'd, and the Patient has been in great Misery.

BUT for common Drink and usual Diet, there is nothing seems to me more reasonable than to submit contentedly to a Course of sweet Milk and *Bristol Waters*, which sufficiently answers all Intentions in cooling and diluting the Blood, in breaking its Cohesions, and impregnating it with soft Balsamick Nourishment; and a long Preparation of this Kind, I think, is highly necessary in Adults, to prevent that excessive Acrimony (*b*) of the Urine, which, in some, is so very sharp, as to excoriate the external Parts (*viz.* the *Scrotum* and *Inguina*)

(*b*) See the sixth History, *viz.* the Cure of Mr. Jeffry's.

where it falls, in spite of all Care to prevent it, by Topical Applications, and must, of necessity, have more pernicious Influence on the bare and expos'd Mouths of the small Vessels and tender Fibres, in the large Ulcer made by the Operation; however careful the Surgeon may be to sheath and defend them with proper Balsamick Medicines.

THE great Danger in the first Days after the Operation, arises from the Inflammation of the Wound, which is communicated to the contiguous Parts, more or less, according to the present Crasis, or Disposition of the Habit, the Internal Surface of the *Pelvis* (c) suffers immediately from the Wound, and the Bladder communicates the Inflammation to the *Ureters*, and so to the Kidneys, and to the *Peritonæum*; which is strongly connected to, and mixes Fibres with it. The tendonous and muscular Integuments of the *Abdomen*, have their Share of the Inflammation, and the Intestines being touch'd and environ'd on all Sides, and communicating Vessels with the inflamed Parts, suffer extremely in the common Disorder, from the Pain and Tension in the Wound: A great Flux of Humors is driven to it; new Obstructions are form'd, and its Lips inflame and tumify; the vulnerary Fever runs higher and higher, and the suffering Parts are more and more inflamed, and spread their Inflammation: The Animal Machine draws near its Dissolution; the Fibres and small Vessels being stretch'd beyond their natural Tone, lose their Elasticity and Power to act on the circulating Fluids, which, therefore, stagnate in the Part, and begin a Gangrene.

(c) The *Regio Pelvis*, in which the Bladder is situate.

THE Cause of the Disorder still subsisting, pushes the Symptoms on farther: The new Access of an inflam'd Fluid to the gangren'd Part, is still forc'd on 'till it bursts all the Vessels, and becomes a Heap of confus'd Putrefaction, or what we call a *Sphacelus*; which, when in the Extremities, runs like Wild-fire, till it approach the Trunk, and ends in sudden Death: But in this Operation, where the Parts more immediately subservient to Life, are inflam'd and suffer, the Patient expires on the smallest Appearances of the Gangrene.

THIS is the Case, when the Accidents happen from the want of due Preparation; and when the Dye is thrown for Life, it becomes the Patient to act seriously, and not to trifle: the submitting to a low Regimen, is but the curbing one's Appetites for a short Time, and the only Inconveniency that attends it, is to grow somewhat leaner, and to some it will happen the reverse; for they'll really be the fatter for it, and the Advantages by it, doubly repay the Trouble; for when one comes to the Operation rightly prepar'd, the Blood cool and uniform, divested of all its irritating Sharpnesses and corroding Humors, the Lentor and Sisy Particles being carried off, which, on small Accidents, are liable to be suddenly Rarified, and run into the greatest Inflammations, the small Vessels clear and permeable, the Circulation, and all the Animal Functions perform'd with Vigour, and the greatest Regularity; in such a Case, the Chance seems very fair for the better.

THE Lips of the Wound in the Integuments and Bladder are obstructed, and inflame more or less, according to the
Pressure

Pressure and Contusion received in extracting of the Stone, on which the vulnerary Fever arises: But the Texture of the Blood being uniform and freed from its most inflammatory Particles and corrosive Sharpnesses, the small Vessels all permeable, the Fibres relax, and the Animal Functions duly perform'd, by the Care taken in the preceding Regimen; tho' the Circulation goes on more briskly than usual, yet meeting with no Obstructions in the Habit, nor in the Parts contiguous to the Wound, it cannot well be the Occasion of any considerable Inflammation, but where it is stop't in the Wound itself; and there the Inflammation rises gradually for a few Days, and tumifies gently; the Lips of the Wound, till the small Ends of the Fibres, and Orifices of the Capillary Vessels that were bruised in the Operation, or corroded by the Access of the external Air, are push'd off, and separated from the sound Parts, by the Impelling Fluid in the capillary Arteries; and here begins the Suppuration.

THE Matter still flowing from the same Arteries, proves the Crisis of the vulnerary Fever; the Tumour in the Lips of the Wound abates daily, the Blood affording its genuine nutritive Balsam, and the corrosive Acrimony of the Urine being prevented by the Regimen, and the artful Application of proper Balsams, the Fibres and small Vessels, preserving their Elasticity, contract to their usual State, and unite, being cemented by their natural Balsam; or, in other Terms, the Parts incarn, heal up, and are skin'd, and then there is time enough to make up for the Penance of the previous Regimen.

I HAVE the more willingly insisted on this Article of Preparation; that I have too often seen it neglected, or but slightly

slightly executed ; and have taken some Pains to explain the Reasons of it, to satisfy the Minds of Patients, that they may, with greater Chearfulness, submit to the necessary Rules that will probably tend to their greatest Advantage.

BESIDES the Regimen of Dyet, it is proper to purge gently every Fourth or Fifth Day, to carry off the viscid Lentor by Degrees, as the Patient can bear it. An Infusion of Senna, or Manna, or any Combination of the milder Purgatives is most proper in this Case ; the rougher Purgers being apt to throw the Humours on the suffering Urinary Passages, and increase their Disorders.


As all Means should be used to supple and relax the Parts, so as they may stretch without tearing, in the Extraction of the Stone, which is often pretty large ; and, that they may give Way the more freely to the circulating Fluids, when the Inflammation begins, and the Symptomattick Fever rises, I think Fomentations and Embrocations all over the Abdomen should by no Means be omitted, which should be used for Three or Four Nights successively, immediately preceding the Operation, and sometimes be continu'd after the Operation, if the inflammatory Symptoms prove dangerous ; which seldom will happen (but when the Body is not duly prepar'd) except in the Case of a Schirrous Bladder, which is not always to be discover'd by its Symptoms ; and when there is a Suspicion of it, all Means must be try'd to remove it, by Diet and proper Medicines ; but if it appear Schirrous to such a Degree, as may be plainly perceiv'd by the Operator, he is inexcusable

cusable if he attempts the Operation in such a morbid Case, where no Success can be expected; an Instance of which we shall have Occasion to mention hereafter.

FOR Fomentations, the common Ingredients may be pick'd and chosen, according to the Mind of the Operator, and boil'd for a *Semicupium*; and the Parts should be embrocated with some proper Linement, when the Patient comes out of the Bath, that it may penetrate with more Ease, while the Pores are open and relax'd: If the Patient be averse to Bathing, let the Abdomen be fomented with Stupes dipp'd in an emollient Decoction, and then the Embrocation apply'd as above.



Of the Seasons of the Year most convenient for the OPERATION, and the Reasons for it Explain'd.

HE proper Seasons for this Operation are the Spring and Autumn, which the most experienced Surgeons have commonly chosen for the Operations of LITHOTOMY in the lower Ways, on Account of the temperate Weather that, for the most Part, then appears; the Air being neither too cold, nor over-heated. But if violent Symptoms allow no Time for Delay, then the Body must be prepar'd as well as Time and Circumstances will permit; and the Cold of the Winter must be

be guarded against by good Fires, in a warm Room, that the nitrous Particles in the Air may not rush into the Wound, to contract the Fibres, and condense the Juices, and so occasion greater Obstructions, and more dangerous Inflammations. And in the Summer, the intense Heat must be moderated, by taking Care to have a cool Room, and such other Precautions us'd, as may prevent the Effects of the Weather from inflaming or rarifying the Blood too much, which increasing the Inflammation in the wounded Parts, may kill the Patient before the Suppuration. Or thus, The Blood being fus'd by the intense Heat of the Season, and meeting with a new *Stimulus* from the inflam'd Wound, the Pores by Nature being open and relax'd, the Patient dissolves in profuse Sweats, which waste the Spirits and Strength, carry off and consume the natural Balsam, and leave the Nerves in a State of the greatest Relaxation; so that the Fibres losing their natural Spring, the Solids, compos'd of them, cannot contract and act upon the Fluids; the inflam'd Tumour on the Lips of the Wound relaxes, and grows flabby, (in a Manner quite different from a regular Suppuration, in which, when the obstructed Matter is push'd off by the impelling Fluid in the small Arteries, the Tumour subsides, and the Fibres are somewhat relax'd, but keep their Spring and natural Firmness) the small Vessels losing their Tone, and being incapable to send the Blood to the wounded Part with that Force which is necessary to promote the Suppuration, the Wound also soaking in the Urine (that is necessarily separated in the Kidneys, and sent to the Bladder) is depriv'd of its natural Heat, and the Fibres being in the utmost State of Relaxation, and want-

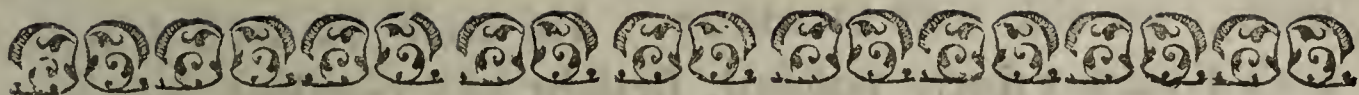
ing

ing all Support from any active Principle, the Part dies, or is mortify'd for want of Nourishment, the whole Strength of Nature being spent and carry'd off another Way; the contiguous Parts labouring under the same Difficulties, and not having Force to throw off the mortify'd Load, it advances still farther, till the Fibres lose all their Elasticity, by a general Relaxation of the whole nervous System, and all the Animal Functions are dissolv'd in Death.

THESE, I think are the Dangers in the Heat of Summer, and to be obviated as I propos'd: If the Weather in the Spring or Autumn proves too hot, or too cold, 'tis best to wait till it changes; or the same Precautions to rectify the Air must be observ'd, as above.

THE Night before the Operation, the Parts are to be shav'd clean, before the Bath or Fomentation be apply'd, and a Clyster must be injected that Night, or next Morning, to clear the Bowels of such Superfluities as might load them.





Of the OPERATION, and what more immediately concerns it, and the Manner of performing it.



TO avoid Prolixity, I have purposely pass'd over all Theories concerning the Formation of a Stone in the Bladder: I also pass by the Signs and Symptoms of a Stone in the Bladder, which are to be carefully consider'd by the wary Practitioner; but as they have been remark'd and explain'd, and clear'd as much as the Nature of the Case will bear; I refer to the Authors of Note, who have exhausted that Part of the Subject. When one is certain that there is a Stone in the Bladder, it is Time to try to get rid of it; and when the Patient is determin'd to submit to the Operation, and has undergone the necessary Preparations, it is the Duty of the Surgeon to take care that nothing be wanting on his Part, to have all necessary Instruments and Implements provided, for the ready, safe, and easy Performance of it.

IN order to this, he should have two Silver Catheters of a fit Size for the Patient, each of them mounted with a Turkey's Wind-pipe, to convey the Water from the Syringe to the Catheter, and so into the Bladder, which must be ~~fitted~~, that it may appear the better, and the Space may be the larger to work on in the Operation. One Catheter may serve, but there should always be another ready, in case of Accidents; he must also be provided with Scalpels or Bistories of different Sizes, straight and crooked, which cut perfectly fine, that he

injected

never be at a loss, when he has a mind to change his Instrument, on the least Occasion. He must be well provided with Forceps finely polish'd, straight and crooked, and with such a Spoon, as is made for that Purpose, to scoop up any Sand or gritty Substances or Fragments of Stones which the Forceps cannot easily lay hold of; there must be warm Water ready for the Injection, and a large Syringe made fit for the Purpose; the Catheters, the Forceps, and the Spoon should lie in warm Water, that they may not be thrust cold into the Bladder.

A TABLE should be provided of a fit Height and Length, and convenient Make for the Posture of the Patient, who should be plac'd in a good Light, that the Operator may see to the best Advantage what he is about: to favour the Situation of the Patient, the Table should be made in such Form, as to elevate a little his Buttocks, and the Chest and Head may be somewhat rais'd with Pillows; by this means the Muscles of the *Abdomen* are less upon the Stretch, and the *Diaphragm* has more Room to play, the Patient breathes freely without Pain or Anxiety, and the less is the Danger of violent Pressure upon the Intestines, which might cause a Rupture in the *Peritonæum*; but of this more hereafter

THERE'S a Nicety in introducing the Catheter, into the Bladder, which one cannot be Master of, but by exact Observation, and long and frequent Experience; and a clumsy unsteady Hand never will come at it as it ought to be. I only give warning, that it is done by Slight of Hand, and that it is dangerous and unwarrantable to force or push against Resistances: Too bold a Practice that Way, may be the Occasion of
Death

Death to the Patient, in trying to relieve him of a simple Suppression of Urine.

I THINK I have mention'd what is most material to be observ'd before the Operation, it being of no Consequence to point out every Particular that is to be manag'd by the Prudence of the Operator, according to the Symptoms and Circumstances of the Patient: I come now to the Operation.

WHEN the Catheter is introduc'd, and the Patient plac'd on the Table, in the Posture above describ'd, his Thighs must be bound with a Fillet on each Side, to the Corner of the Table which should be made fit for the Purpose, so that the Binding may not strain the Thigh downwards, which would keep the Parts too much on the Stretch; then the Operator applies the Syringe full of Blood-warm Water to the mounted Catheter, an Assistant holding the *Penis*, with a Rag between his Fingers and Thumb, that it may not slip, and pressing it gently, that the Water may not force its way out between the Catheter and the *Urethra*.

THERE is no certain Quantity of Water can be determin'd as sufficient for any Age or Size. The general Rule is, to stop when the Patient begins to complain very much, which happens in some sooner than others, according as the Internal Coat of the Bladder has suffer'd more or less, from the included Stone, for if it is much Inflam'd, or Excoriated, or Ulcerated, or, perhaps, somewhat Schirrous, the stretching too far would add greatly to the Danger of the Operation, and if the Bladder be ever so sound, and can bear a large Extension, I think 'tis wrong to raise it too high; for then the Parts being all upon
the

the Stretch, and striving to contract and regain their natural Station, the Bottom of the Bladder being much elevated, and incroaching upon the Intestines, the *Diaphragm* and the Muscles of the *Abdomen* being in the greatest Tension, and ready to act with Violence, on the least Liberty; When the Puncture is made in the Bladder, the Water rushes out, the Muscles contract, and at one Push, force the Intestines on the weak, expos'd Part of the *Peritonæum*, which may give way, and be rent by the Intestines *quæ qua Data porta, Ruunt*.

I THINK the Danger of this Rupture is the greater, that the *Peritonæum* by its Contexture is incapable of contracting its Fibres when on the Stretch, but slowly, and by degrees; whereas the muscular Fibres act with Violence, in the very Instant of Time, as quick as Thought, and so the *Peritonæum* must bear the Shock at the greatest Disadvantages: so that on all Accounts, it seems amiss to inject too much Water; and the surest Rule, is to desist, when the Patient complains exceedingly, which he soon will do, the great Pain of the whole Operation consisting chiefly in this one Article, the Pain of the Incisions being but trifling in Comparison.

WHEN the Bladder is sufficiently injected, which is known by the Pain, as above, and by the Tumor it occasions above the *Os Pubis*, then the Surgeon is to advance boldly, and, with all possible Presence of Mind, to the Operation, and pinching up the Skin immediately above the *Os Pubis*, and partly upon it, with the Fore-finger and Thumb of his Left-Hand, an Assistant pinching the Skin in the same Manner on the other Side; the Operator makes a large Incision (with such Scalpel or Bistoury as he finds most proper) at the
lower

lower Extremity of the *Linea Alba*, exactly in the Middle: Then he cuts down between the Extremities of the *Musculi Recti*, and through the *Linea Alba*, to lay the Bladder bare, dividing the Integuments with freedom upon the upper Part of the *Os Pubis* (provided Care be taken not to go so low, as to injure the suspending Ligament of the *Penis*) and taking heed not to divide them too high, to expose the *Peritonæum*.

IN doing of this, there is no need of haste or hurry; the Surgeon is to act deliberately, and with discretion, feeling with his Finger what he is to do, and cutting by its Direction, that he may perform what he is about with Certainty, which is evidently to be done in this Case.

WHEN the Bladder is enough laid bare (which by the bye, will not appear so to the Eye, the Extremities of the *Musculi Recti* contracting in such Manner, as to shut the Aperture so as it requires some Force to squeeze the Finger between them, by the feeling of which, the whole Operation is guided and directed) then the Surgeon is to plunge the Scalpel into the Cavity of the Bladder, a little below the *Urachus* (a) making

F a large

(a) All that is wanted to make this Operation perfectly safe, is to know exactly the Place where to make the Puncture in the Bladder, which should be in the middle of the *Protuberance* which the Bladder makes when it is injected; or, for the greater Security, a little lower than the Middle towards the *Os Pubis*, that the Danger of cutting the *Peritonæum* may be avoided with Certainty.

I was in hopes that the Place for the Puncture, might be fix'd to the Satisfaction of every Body, by searching gently with the Finger, for the Insertion of the *Urachus* in the bottom of the Bladder, which, in an adult Subject, I have observ'd to be prominent, like a little Knob, pretty firm, and as big as a large Pea, only somewhat flatter; and the Finger being plac'd upon it, the Puncture might be made immediately under it, with absolute Certainty: But I find this Direction is fallible in live Subjects, where
the

a large Incision downwards under the *Os Pubis*, that there may be full Room to extract the Stone, without injuring the Bladder. This Incision is to be made gently at one Stroke, without taking out the Scalpel till it is finish'd, for as the Bladder sinks presently, it would be difficult to introduce it again in the same Orifice, and so there will be a Chance of two or more Incisions, perhaps, in different Places, before it is possible to come at the Stone; besides, as the Bladder sinks, it yields like a Tripe to the Edge of the Knife, so that it requires some force to cut it, which is to be used with great Caution and Presence of Mind, for by a little Rashness, a sharp Scalpel may cut through the *Cartilage* that joins the *Os Pubis* in the Middle, which is not ossified in young Subjects. Dr. *Douglafs* has a Preparation by him, which is an Instance of this Accident in a Subject of 17 or 18 Years of Age. Add to this, that on such Occasions, the Operator may be apt, in the Hurry, to push the Knife too low under the *Os Pubis*, so as to wound the *Prostata*; which would probably occasion a troublesome sinuous Ulcer in that Place, which Accident I have never seen, but am inform'd it has happen'd. When the Bladder is laid open, the Catheter is to be pull'd out, which I think should remain in the Bladder till the Puncture is made, having sometimes seen it necessary to inject more Water, after the Bladder was laid bare, that its Situation, and the Place to be cut, might appear more plainly to the Operator, who, otherwise, by Mistake, might have cut the *Peritonæum*.

the Fibres being all in Action, the Part seems so equally Tense, that 'tis hard to distinguish the Insertion of the *Urachus*. However, I mention this as a Theory, which, perhaps, may be improv'd, and in Adults is not entirely to be neglected.

above

above the *Urachus*. Since I wrote this, I am inform'd by Dr. *Douglass*, that Dr. *Bamber* has always taken this Method of injecting some Water after the Bladder is laid bare, by which means he has still avoided the cutting of the *Peritonæum*; and if so, he is the only Operator that has perform'd in this Way, who has been so lucky to escape that Accident. When the Catheter is out, a convenient Forceps must be introduc'd upon the Finger, to lay hold of the Stone, and extract it gently, moving it softly from Side to Side, that it may glide and slip out easily, by stretching the Parts, and not bruise or tear them, by being pull'd out rashly and with force. If there be more Stones than one, the Forceps must again be introduc'd, and the Affair manag'd in the same Manner, till they be all extracted, and any Collection of Sand or Grit, or Fragments of Stone must be taken out with the Spoon, directed by the Finger to receive them.

ANOTHER Way to perform the Operation, is to penetrate the Bladder in the same Manner as above, with a pointed Scalpel, and then introducing a lenticular, crooked Bistoury upon the Finger, a large Incision is to be made downwards, to lay the Bladder open, and then the Stone is to be extracted in the Manner already describ'd; but the Caution in using the lenticular Scalpel, I think, is needless, for there's no fear, that a Surgeon, who knows the Structure of the Parts, should push the Knife so far, as to wound the other Side of the Bladder. Besides, the lenticular Point being blunt, prevents the Possibility of making the Incision to the necessary Length under the *Os Pubis*; that the Opening in the Bladder may be large enough to give way to the Stone in the Forceps, to pass freely, without the danger of bruising the Bladder, or of pulling
the

the Lips of the Wound in it, out into the open Air along with the Stone, to which they sometimes cling very close when collaps'd and contracted; but when the Incision in the Body of the Bladder is large, the Stone slips out with ease, and the Resistance it meets, is only from the Sides of the *Musculi Recti*, which will easily stretch to a great degree, and if bruis'd by the Stone or the Forceps, may, by common Means, soon be brought to Suppuration.

WHEN the Operation is over, the Thighs are to be untied, and the Wound dress'd with some good Digestive, and the Patient put to Bed.

IT is evident, by the Structure of the Parts, that it is a dangerous, unwarrantable Practice, to begin the Incision from the *Os Pubis*, and to continue it upwards to the bottom of the Bladder, there being no Possibility of Security against wounding the *Peritonæum*, in the doing of which, consists all the great and dreadful Danger of the Operation; for, besides the common vulnerary Symptoms, which are enough for Nature and Art to struggle with, in this Case, there's a new dismal Series of Accidents added to the usual Appearances, terrible to the Sight, and which, I doubt, will, for the most part, be fatal in the Event.

THE Moment the *Peritonæum* is cut, the Bowels rush out with Force between the Hands of the Operator, and very much disturb the Extraction of the Stone: And though after the Operation, they may be soon reduc'd to their Place, yet their being expos'd some time to the Air, and meeting with the necessary Pressures of the Fingers to reduce them, which, if
ever

ever so gentle, is rougher Usage than what they are accustomed to, proves the Occasion of a violent Inflammation, which is still increas'd by the Urine's pressing into the Wound and soaking them, irritating and pricking by its acrimonious Salts, their tender Coats, and all the Membranes and nervous Filaments of the other *Viscera*, so far as it reaches.

THIS is a Scene of Destruction, that no Man can answer for, and a few casual Escapes are not sufficient to defend the Practice, where the Life of the Patient is expos'd to a needless Chance, which, in Prudence, should be prevented; besides, if the *Peritonæum* escapes, the Wound being too small, for want of Space to enlarge it, the Bladder must be pull'd and bruise'd, and, perhaps, so rent in extracting of the Stone, which may give occasion to great Suppurations and Sinuous Ulcers, that might have been prevented by a large Incision downwards, under the *Os Pubis*, which is done without any Hazard, provided the Precautions are observ'd as above directed; and is a rational Practice.

WHEN the Stone is very large; or, if there has been more than one; or if, on account of the breaking of a soft Stone, there has been occasion to introduce the Forceps, or the Spoon pretty often, so as the Lips of the Wound are suppos'd to be very much contus'd; I think it's proper to make slight Scarifications, at small Distances on both Sides, so as to make the Blood appear with each of them: This will take off the Fear of a Gangreen, that might follow from the great Obstructions occasion'd by the unavoidable Contusions in the Operation, by giving Vent to the Blood, which otherwise would Stagnate there: By this Means, the Obstruction is diminish'd, the Cir-

G

culation

ulation in the Part is promoted, and the elastick Force preserv'd in the Fibres and small Vessels, to enable them to forward the Suppuration, which is the first great Aim of the Surgeon, and Intention of Cure.

As the Suppuration advances, the *Pus* or Matter flows from the tumified Lips of the Wound, which of course relax and sink by degrees, as the Obstructions are removed, which stop the Circulation in the Part; by this means the Fibres and Capillary Vessels have Space to contract, which they do every Moment (as the Resistances diminish) by their innate Elasticity, till they arrive at their natural Bigness and Station, and then meeting on both Sides with one another, they are Cemented by their natural Balsam. This we call *Incarning*, which by the Laws of the Animal Oeconomy, goes on in such Manner, as where there is loss of Substance, the Capillary Vessels send out at their Extremities, small Particles of nutritive Balsam duly prepar'd by the last Concoction, which condenses at their little Orifices by degrees, as the Humidity evaporates, and forms a fleshy Substance, which meeting on all Sides, adheres, increases and fills up the Ulcer, which is soon skin'd over, and for the most Part, performs all the necessary Duties of the Part as before.

THIS is the Case in such Wounds or Ulcers as are curable, and is plainly so in those of the Bladder, which, though formerly thought Mortal, are, by late Experience, prov'd otherwise. It is evident, that they Suppurate, Incarn, and are Cicatriz'd, in the same Manner as other Wounds of the fleshy Parts, and, perhaps, with as little Danger, provided that due Precautions are us'd to prepare the Body before the Operation,
and


and that no Symptoms appear but what are strictly Vulnerary ; for when a Constitution is broken by a chronical Distemper, and the *Viscera* are not sound, any bad Accidents that may happen, are not to be imputed to the Operation.

I AM of the Mind, that the Wounds of the Bladder, which have happen'd to be remark'd by the Ancients, have most commonly been such as chanc'd to be near its Bottom, so that the *Peritonæum* has also been wounded ; and in such Case, there's no answering for the Consequences, especially where it is probable the wounded Orifices have been small, and the ancient Surgeons afraid (because of the Danger of the suppos'd spermatick Part) to make sufficient Dilatations and Scarifications to relieve the Tension and Inflammation, and give free Vent to the Urine and Matter in the Suppuration ; the Retention of which might be the Occasion of all the frightful Accidents that terrified Antiquity.

IT may, perhaps, be expected that I should give a fuller Account of the Method of Cure ; but the Hints I have given, being such as an experienc'd Surgeon will know how to make the best Use of, I shall not trouble the Reader to insist more on it ; but proceed to the Histories of a few Patients that have undergone the Operation, in which, as it falls in my Way, I shall observe any thing that happens to be remarkable in the Cure.



The Histories of some Patients that were Cut by
Mr. WILLIAM THORNHILL, Surgeon, in
Bristol.

- I.  HE first was a Boy of 8 Years of Age, his Name *John Pritchett*, of this City. The Operation was perform'd *February 3. 1722-23.* He complain'd much of the Pain which was occasion'd by the Distension of the Bladder, when the Water was injected to raise it; but, otherwise, he bore the Operation very well. A Stone was extracted which weigh'd *3iii*; he was dress'd warm with *Arcæus's* Balsam, and put to Bed, and was order'd to feed on Water-gruel, and to drink freely of Origany-Tea, and Sage-Tea; and towards Night, his Wound and *Abdomen* were fomented with an emollient Decoction. He Rested well that Night, and was fomented and dress'd next Morning as before. He then complain'd of Hunger, and wanted more substantial Food, which was not allow'd him: The vulnerary Fever rose by degrees, without any bad Symptoms. The Fomentation and Dressings being continu'd Twice a Day, the Suppuration came on regularly well, digested Matter appearing the Fifth Night. A few Days after the Dressings were made more Mundifying, and the Wound soon began to Incarn. There was not a bad Symptom of any Kind to be observ'd till the Sixteenth Day: That he was
some.

somewhat Feverish ; but drinking freely of thin Water-gruel and Sage Tea, he was pretty easy at Night, and continued so next Day till Afternoon, and then he was taken with a violent Fever, and was sometimes delirious: Another Physician was there with me; and we agreed to order him to dilute plentifully with warm weak Liquors, as the Day before, and to cover him warm, to throw him in a Sweat ; which had the desired Effect, and next Morning he was perfectly cool and easy. On strict Enquiry as to his *Regimen*, Mr. *Thornhill* then discover'd, that his Mother, who was his Nurse, had, the two preceding Days, privately given him a full Meal of fresh Meat for Dinner, and wash'd it down with a Cup of good Ale : When he chid her for it, and told her the Danger, she persisted in a Resolution to do it again, and when Means was found to have her remov'd from him, she went about exclaiming, that the Doctors and Mr. *Thornhill* would starve her Child, and that he only wanted good Things to comfort him. After this, the Part heal'd apace, and in Twenty-eight Days was Cicatrized : The Boy continues to this Day in perfect Health, and free from all Nephritic Disorders.

II. The Second Operation was perform'd on *Jos. Flower*, a Boy of Six Years of Age, who liv'd near the City of *Bristol*. He was Cut *February* 15. 1722-23, and a round flattish Stone was extracted, weighing 3v. He bore the Operation mighty well, as he did the whole Course of the Cure, with surprizing Patience and Mildness of Temper, and a Strength of Reason uncommon for one of his Years : He was dress'd with warm Digestive, and Fomented. The second Night the vulnerable Fever rose very high, and was more violent next Morning, when a Rash began to appear, which by Night was broke out

all over his Body; a temperate Cordial was prescrib'd to him, and he was order'd to dilute plentifully with Water-gruel and Sage-Tea, and at Night he had a Clyster of Milk and Sugar, and was fomented and dress'd warm; the fifth Day his Wound came to a tolerable good Digestion, and the Fever diminish'd by degrees, and in a Day or two after, the Rash went off in a Scurf; the Wound incarn'd without any other bad Symptoms, and was cicatriz'd the Twenty-fourth Day after the Operation.

III. The Third, who underwent the Operation, *March* 1722-23, was *Benjamin Milson*, a Boy of 15 Years of Age, of *Temple-street, Bristol*. The Incision in the Integuments, and in the Bladder being somewhat too small, there was some Difficulty to extract the Stone; but a little Care in turning the Forceps gently, from Side to Side, made the Parts relax, so that it slid out without any Hurt or Contusion; it was a small long Stone, with several rough Knobs on it, and weigh'd Half an Ounce; the vulnerary Fever rose gently, and the Suppuration came on regularly the fifth Day, and there was not a threatening Symptom during the whole Time of the Cure, which was compleated (the Part being cicatriz'd) the Twenty-fourth Day after the Operation, the Boy continuing in perfect Health ever since.

IV. The next who submitted to the Operation, was *Joseph Segar*, aged 45 Years, living about Seven Miles from *Bristol* in the County of *Somerset*. He was Cut *June* 12. 1723. and a Stone extracted near the Bigness of a Duck's Egg, weighing above Four Ounces. He bore the Operation well, in which there was nothing happen'd remarkable; but soon after it, he was seiz'd with a violent Pain in the Wound, which

which reach'd all over the Capacity of the *Pelvis* and the lower Part of the *Abdomen*; I order'd him a Paregoric, and an emollient Fomentation was soon apply'd, and after that, a Cataplasm of the same Ingredients, which remov'd the Violence of the Pain, and no threatening Symptoms appear'd afterwards. The Wound was dress'd warm, with a common Digestive, and the same Fomentation and Cataplasm continu'd twice a Day; the vulnerary Fever rose very gently, and the Suppuration came on, good Matter appearing the fifth Day; the Digestion went on regularly, and the Wound incarn'd apace, till the Fifteenth Day after the Operation: He began now to think himself out of Danger, and being weary of his Regimen, he prevail'd with his Nurse to let him drink at liberty; and having no Restraint, he was weak enough to suffer himself to be overtaken with Liquor; the Effect of which, was the inflaming of the Wound; but a few Days Abstinence, and low diluting Diet, soon took off the Inflammation, and the Wound was cicatriz'd the Twenty fifth Day after the Operation, and he return'd to his Business in the Country, with all the Signs of perfect Health; but not being capable to confine himself from Irregularities in Diet, and indulging too freely with spirituous Liquors, there soon ensu'd a nephritic Paroxysm, in which his right Kidney being exceedingly Inflam'd, imposthumated and discharg'd large Quantities of purulent Matter by Urine (which continued in spite of all Endeavours to prevent it) till he died, about Eight Months after the Operation. Mr. *Thornhill* open'd his Body in Presence of Doctor *Logan*, and found the Right Kidney almost totally consum'd by a large Abscess, which was then full of foetid Matter, distending the *Pelvis*; and in the *Ureter*, three Inches below the Kidney, there was a small
Ulcer₃₂

Ulcer; the Bladder and Contents of the *Pelvis* were all perfectly sound: The Bladder was united in the Cicatrix with the Muscles of the *Abdomen*.

V. *June* 20. 1723. was Cut a Boy 4 Years of Age, Son to Mr. *Barns*, Sugar-baker of this City, and a Stone extracted the Bigness of a Peach Stone. Fomentations were us'd by way of Precaution, though no ill Symptoms appear'd; a common Digestive brought on the Suppuration regularly. The Wound incarn'd, and the Fifteenth Day was cicatriz'd, the Boy continuing well ever since.

VI. *July* 13. 1723. The Operation was perform'd on Mr. *Jeffrys* of *Box*, in the County of *Wilts*, aged 48; from too free a Course of Life, he had contracted a Cachexy, and had been Asthmatic for many Years, which he conceal'd before the Operation, lest the Discovery might have occasion'd an Unwillingness to undertake it. There was a round Stone taken from him, which weigh'd three Ounces one Drachm: He bore it very well, only complaining of the Injection of the Water in the Bladder, which was still the great Complaint in all the former Operations. The Wound was dress'd with warm Digestive, and a Fomentation us'd: On the Approach of the vulnerary Fever, his Asthma seiz'd him violently. I order'd him a Solution of Gum Ammoniac to be taken, Cochleatum; but its disagreeable Taste offended him, and he threw it up, on which I presently order'd the Pectoral Decoction, *sine Hyssopo*, of which he drank at liberty, being sweeten'd with Syrup of Maidenhair, and a few Drops of Spirits of Hart's-horn in each Draught; an emollient Clyster was injected: By this means, he was
some-

omewhat relieved, all Care was taken to promote the Suppuration ; but the fourth and fifth Days no Signs of Digestion appearing, and the Wound growing flabby, a Gangrene seem'd to threaten ; on which he was dress'd warm with a Mixture of Linement and *Ungu. Ægyptiac.* a lixivious Fomentation being first apply'd, and then an Epithema of *Theriac. Andromac.* was put over the Dressings, reaching a good way up the *Abdomen*: The next Dressing the Lips of the Wound were firm and sufficiently Tumified, the lixivious Fomentation was still continued to promote the Perspiration in the Part, and preserve the Tonic Virtue of the Solids, and a warm Digestive, with some Red Precipitate, was apply'd to the Lips of the Ulcer, to relax the Fibres there, and bring on the Suppuration, to remove the small Eschars made by the *Ægyptiacum*. This Method was continued, and he persisted in the Use of the pectoral Decoction, with Spirits of Hart's-horn, *cum Levamine* ; his Diet consisting of Water-gruel and a weak Chick-broth, Sage-Tea, &c. The eighth Day some Matter appear'd at the Edges of the little Eschar, which separated more and more, till the Twelfth ; the Slough was thrown quite off, and the Ulcer lively and fresh : Then the Dressings were made more Mundifying, to cleanse and incarn the Ulcer. In the mean Time, there was another Symptom exceedingly vexatious, of which he complain'd incessantly, which was an Excoriation of the upper Part of the *Penis*, and of the *Scrotum* and *Inguina*, which no topical Applications could prevent or assuage : He continued his cooling and diluting Diet, and drank at liberty of Emulsions made with Almonds and the cold Seeds, he took *Sal. Prunellæ*, Linseed Tea with Liquorice, mixt with some *Rad. Alib.* and *Rad. Symp.* ; but all to

no Effect, for the Acrimony of the Urine still corroded the Parts so long as it had Vent that way.

THIS Excoriation was so very uneasy, that he has often declar'd, that he would have chose to be cut every Day, rather than bear it, and that it was more intolerable than any Fit of the Stone. Nothing but Opium would give him Ease or Sleep; it is on account of this Observation that I insist so much on a cooling humecting Regimen, previous to the Operation in Adults; for when the Juices are thoroughly impregnated with corrosive, scorbutic Salts, it is not possible by any Diet or Medicines to carry them off suddenly: There must be a due Time allow'd to dissolve and wash them away by degrees out of the Habit.

THE sixteenth Day he took a Fancy, that drinking so much small Liquors increas'd the Scalding of the Urine, for which he abstain'd obstinately from them; and prevail'd with his Nurse to let him have some Wine, of which he drank too freely, so as to be a little over-taken with it, which occasion'd some Uneasiness in his Wound for two Days; but due Care in the Regimen soon carried off the bad Effects of it, and convinc'd him of his Error. After that, the Wound incarn'd apace, and was cicatriz'd the 31st Day after the Operation. He went Home in a better State of Health than ever he had possess'd in his Remembrance. I am inform'd, that from his little Excursions in his Way of living, he has been subject to his old Asthmatic Disorders, and has suffer'd by two or three nephritic Paroxysms; but I don't hear of any Signs of a new Stone in the Bladder.

IT is to be remark'd, that though all that are cut commonly complain of Hunger the Day after the Operation; yet they are often subject to little Nausea's till the Suppuration be somewhat advanc'd; on which account it seems reasonable to avoid every thing in Diet and Medicines that go against the Palate, and may give Uneasiness to the Stomach, which being environ'd on all Sides with the inflam'd Parts, is in Danger on the smallest Accidents to be thrown into Convulsions and Vomitings, which might give a severe Shock to the suffering Parts on this Occasion, and disturb the whole Animal Oeconomy; for which reason I chose to persist in the liberal Use of the soft pectoral Decoction, with *Spir. c. c.* to relieve the Asthma and give Way to the Humour of the Patient, who abhorr'd the *Gum. Ammoniac. Solut.* and had an Aversion to every thing that was Oily.

VII. *October 27. 1723.* THE Operation was perform'd on *William Philips*, a Boy of 14 Years of Age. He seem'd to me to have a Cachexy with Symptoms of an Ascites, on which account I dissuaded Mr. *Thornhill* from the Operation, who shifted it above two Months, and would willingly have been excus'd; but he was at last prevail'd on by the daily Sollicitations of the Boy's Relations, and the pressing Desires of some of his own Friends.

IN this Operation, after the Forceps was introduc'd and charg'd with the Stone, the Bladder contracted, and the Lips of the Wound stuck close to the Forceps and Stone; which gave Occasion to observe, that if it had been attempted to pull out the Stone suddenly, the Bladder must certainly have been

been pull'd out of the Body along with it, the Lips of the Wound embrac'd it so strongly. Probably the Bladder being schirrous (as was afterwards found) might hinder it to stretch, and give way to the Stone to come out; or, perhaps, the Incision being too small in the Bladder, might be the Occasion of the Accident. The Incision was enlarg'd downwards under the *Os Pubis*, with the Point of a Scalpel, and an Assistant pressing down the Lips of the Wound with the flat of his Fore-fingers on each Side the Forceps, the Operator slip't the Stone out with Ease, and without any Injury to the Bladder: This shews that the Incision in the Substance of the Bladder downwards under the *Os Pubis*, can never be too large; the Stone should have Scope to come out without bruising or tearing the Bladder, or being stop't in the Manner above describ'd.

THE Stone was four Inches long, and larger at one End than t'other; it weigh'd four Ounces and two Drachms. He bore the Operation with great Courage, and was dress'd warm and put to Bed.

THE vulnerary Fever soon began to run high, and about four Hours after the Operation, he was seiz'd with Vomitings, which continued (with some Intermiſſion) for three Hours. I order'd him a Paregoric and a temperate Cordial, with *Ocul.* 69; of which he drank at liberty, and an emollient Fomentation was apply'd all over the *Abdomen*, to take off the Orgasm, and abate the Inflammation of the Parts: He slept a little, and was pretty easy till next Morning; but then he turn'd delirious, and soon after he was convuls'd, the Fomentation was again applied, and a warm Digestive to the Wound, which

which gave some small Relief; but the Delirium and Convulsions return'd towards Evening, and continued, with short Intervals, till next Morning that he died.

HIS Body was open'd: Both his Kidneys were very large and flabby; there were two *Ureters* came from the right Kidney, which were of a monstrous Size, and half-way down to the Bladder, they united into one, which was five times as large as the Natural.

FROM the left Kidney, the *Ureter* came off monstrously large, in which was contain'd above a Quart of Urine.

THE Bladder was very Schirrous, and in some Places above an Inch thick. The *Peritonæum* was gangren'd; the rest of the *Viscera* were all sound.

WHEN he was alive, his Belly was often much distended, and an Appearance of Water, as in the *Ascites*; which must have been occasion'd by what was contain'd in the *Ureters*, where a large Quantity of Urine had been often stop't: he frequently voided three Pints of Water at a time, which could never be contain'd in the Bladder of one of his Years, and so small a Stature. There was near that Quantity in his left *Ureter* when the Body was open'd.

An Explication of the Urinary Passages of William Phillips, who was Cut for the Stone in the Bladder by Mr. Thornhill, October 27. 1723.

A THE left Kidney, five Inches and a Half in Length.

B THE broad End of the same Kidney, three Inches broad.

C C THE narrow Part of the same Kidney, from whence the *Ureter* took its Rise.

D D D THE large Capacity of the left *Ureter* (which began where it came off from the Kidney) in which was contain'd above a Quart of Urine when the Body was open'd.

E E THE narrow Part of the same *Ureter* going down to be inserted in the Bladder.

F F F THE right Kidney Six Inches in Length.

ff A Dint in the broad End of it, which resembled the Dints in the Kidneys of a Bullock.

G G THE large Portion of the *Ureter*, which came from the narrow Part of the right Kidney.

H H THE

H H THE other *Ureter* coming much smaller from the large End of the same Kidney.

I I THE two *Ureters* from the right Kidney united in one, which descends to be inserted in the Bladder.

K K THE internal Surface of the Bladder laid open.

L L THE little Orifices by which the *Ureters* open'd into the Bladder, very much dilated beyond their natural State.

M THE Stone which was extracted from him in the Operation.

VIII. THE next was *George Thomas*, a Blue-coat Boy in *Redcliff-street, Bristol*, aged 13 Years, who was cut *December 10. 1723*. In this Operation, the *Peritonæum* was wounded, and the Intestines came down between the Hands of the Operator before the Stone could be extracted, which, however, was soon done, and the Intestines reduc'd. A Suture was made on the upper Part of the Wound, in hopes to prevent the Intestines from being push'd down through the Aperture; but there was not that Advantage from it as was expected. It is not possible by it, to keep the Wound so close shut, but that the Urine will insinuate itself into the Cavity of the *Abdomen*, where (not having a free Exit at every Dressing) it must occasion the most dangerous Symptoms, till the Stitches are cut, and the Orifice is enlarged, to give Vent to it; and every Stitch being a new Wound, which encreases the Pain, and adds to the vulnerary Symptoms, without a right Prospect

Prospect of Advantage from it; in case of such an Accident (which I think may be avoided) I should not advise others to try that Practice.

THE Stone was round and flat, weighing an Ounce and six Drachms; he was dress'd warm with *Linement Arcæ*, and took a Paregorick: The vulnerary Fever soon began to rise; Fomentations, Embrocations, and Cataplasms were apply'd all over the *Abdomen*. He had a temperate Cordial with *Ocul.* ⁶⁹ and all means were used to relax the Parts, and abate the Inflammation; the second Day he had frequent Vomittings and Touches of a Delirium; that Night he was sometimes convuls'd, and the third Day he died.

IX. *December* 14. 1723. The Operation was perform'd on *Emanuel Stibbins* of this City, Eighteen Years of Age. He seem'd to be of a good Habit of Body, abstracting from his nephritic Symptoms, which often were the Occasion of Suppressions of Urine, and of frequent Discharges of purulent Matter, which seem'd to come from one of his Kidneys.

Mr. *Thornhill* was under much Concern, on account of the preceding Operation, which made him proceed in this with all imaginable Caution and Deliberation, in order to avoid wounding of the *Peritonæum*. The Bladder being injected, as full as the Patient could bear, and laid bare in the usual Method; he pointed at the Place to make the Puncture, where he thought it must be secure: Then he push'd the Scalpel into the Bladder, and made a large Incision downwards under the *Os Pubis*; the Water rush'd out with Impetuosity, and as he was introducing the Forceps (to his and our great Surprise) the

the Intestines came down between his Hands, as in the preceding Operation ; he extracted the Stone with Ease, and reduc'd the Intestines gently with his Fingers, and dress'd the Wound, and put him to Bed, his Buttocks somewhat rais'd, and his Body and Head pretty low, to prevent, by the Posture, the falling out of the Intestines. He was pretty easy that Afternoon ; at Night he was carefully fomented all over the *Abdomen* ; he pass'd the Night without great Uneasiness (having taken a Paregoric) but in the Morning his Fever began to rise, with great Weight and Pain all over the *Pelvis* and lower Part of the *Abdomen*. He was again fomented, and an emollient Embrocation applied warm all over the Belly. I order'd him Barley-water and thin Water-gruel to drink plentifully, and some Emulsion of Almonds to drink often, allowing him nothing that was more Solid, lest the Intestines might be loaded, which I soon expected would be greatly inflam'd ; he had also a temperate Cordial, with Crabs-eyes, and diaphoretic Antimony, of which he drank often : At Night the same Fomentation, and Dressing, and Embrocation, were repeated, his Fever increasing with great Anxieties. He had a very bad Night, and next Morning the Fever rising very high, he had some Touches of a Delirium, with great Anxieties.

HE was dress'd again in the same Manner as before : About an Hour after the Dressing, Mr. *Thornhill* came to me in the utmost Concern for his Patient, whom he attended with a Care and Diligence almost inimitable ; I went with him ; and finding the Fever run exceeding high, with intense Heat and Difficulty of Breathing, and all the Signs of the last Degree of Inflammation, I order'd a large Quantity of Blood to be taken

L

from

from him that Moment ; this gave a sudden Check to all the Symptoms, and reliev'd him beyond all Expectation.

A FEW Minutes after, he fell into profuse Sweating, which continued all that Day and Night, and Care was taken to promote it, and to keep him in a Breathing all the Day following.

By this time I began to be uneasy that he had not a Stool ; but I was afraid to procure one by a Clyster, dreading the Effects of the least Irritation on the inflam'd Bowels, which I suspected would of themselves soon run into a Diarrhæa, and a Colliquation of the Humours might make it too impetuous to be stopt, and soon carry off the Patient ; however, being also afraid that the retain'd Fœces might occasion an Irritation to the same Effect, I order'd four Ounces of Oil of sweet Almonds to be injected tepid, by way of Clyster : He went to Stool soon after, and in the Space of two Hours, he had two Stools more. I then order'd him a small Bolus of *Confect. Fracastor. s. m.* and the *Decoct. Alb.* for his common Drink, which had immediate Effect, and quieted the Bowels.

ALL Care was taken to promote the Perspiration, and to keep him in a Breathing-Sweat ; which, however, was not sufficient to relieve intirely the inflam'd Bowels ; for next Day he complain'd again of Gripings, and had three Stools quickly following one another, upon which another Bolus was order'd, which gave a Check to the Diarrhæa.

By this time his Fever was almost quite abated, and his profuse Sweats and Evacuations by Stool, had brought him
very

very low, and his Wound looking pale, and a little flabby, a lixivious Fomentation was apply'd, and red Precipitat added to the Digestive; the seventh Day good Matter appear'd, and the ninth Evening, the Slough on the Lips of the Wound was thrown off; during this time there was every Day a new Tendency towards a Diarrhæa, which was kept within Bounds by the *Decoct. Fracastor.* of which he took three Spoonfuls every four or five Hours, and after every Stool, and continued the *Decoct. Alb.* His Food was Bisquet-gruel, Rice gruel and Sagoe.

THE thirteenth Day Mr. *Thornhill* observ'd a large Tumour in the *Abdomen*, a little below the Navel, upon pressing of which gently with his Hand, a great Quantity of Urine and Matter was discharg'd from the Capacity of the *Abdomen* by the Wound: He was then rais'd higher in Bed, and order'd to be taken up every Day, or to sit up in Bed, that the Matter and Urine might tend to the depending Orifice, and have a perpetual free Discharge. The *Abdomen* was again fomented a few Days, and the Tumour was gently press'd with the Hand at every Dressing, till it vanish'd, and no more Matter appear'd from it.

THE Wound incarn'd very well, and from the 14th Day to the 24th, the Urine and Matter came as much by the *Urethra* as by the Wound, and then came all by the usual Passage, excepting some Ousings now and then from the Wound, which, the one-and-thirtieth Day after the Operation, was cicatrized.

ABOUT Six Months after the Operation, I was inform'd that the Cicatrix had sometimes been inflam'd to so great a degree, that a small Suppuration had follow'd, and some Ousings of Urine, mixt with fabulous Matter, had come from it, which he deny'd to me when I had the Care of him in one of his nephritic Paroxysms, and he shew'd me the Part, which then appear'd to be well. Since his Death (which was about fourteen Months after the Operation) I am told, that he had several Eruptions of Urine and Matter from the Cicatrix at different times, which, probably, he deny'd both to Mr. *Thornhill* and me, to avoid the Uneasiness of being persuaded to any further Trouble about the Cure. We were not appriz'd of his Death; so that we had no Opportunity to have him open'd, and the suffering Parts examin'd.

THIS is a faithful History of all his Case, which is very singular and worthy of Observation. Mr. *Thornhill* was so thoroughly aware of the Danger of cutting the *Peritonæum*, and so cautious in guarding against it, that I can scarce yet be fully satisfied in my Mind, that it was cut; but have a Suspicion that the Bladder, being very much distended by the Injection, and contracting suddenly, on the rushing out of the Water at the Incision, the *Diaphragma* and the Muscles of the *Abdomen* being then upon the Stretch, and Space given, their sudden Action might, possibly, with Vehemence, force the Intestines down on the bare Portion of the *Peritonæum*, where there was not a proportional Resistance.

IT was serious Reflection on this Accident that gave me occasion to observe, that as the *Peritonæum* here is of a looser
Con-

Contexture than elsewhere, and therefore very subject to Ruptures, so it might also be liable to be burst or torn, if a violent Pressure from above should fall upon it when bare, and not supported by the Integuments.

X. There was Cut *June* 1724. a Boy of Five Years of Age from *Taunton Dean* in *Somersetshire*: A small Stone was taken from him of 3ß weight: He was drest warm with *Lini-ment Arcei*, and put to Bed. About an Hour after he complain'd of Sicknefs at his Stomach, which was soon succeeded by Vomiting, which reliev'd him; an emollient Fomentation was applied, and the feverish Symptoms coming on too briskly, he was Delirious in the Evening: He was kept to the ordinary, low, diluting Regimen, and had a temperate Cordial: He sweated much that Night, and next Morning was pretty easy, the Fever abating and continuing in a regular Way, till the Suppuration came on in due time; the Wound digested and incarn'd regularly, without any more bad Symptoms, and was cicatriz'd in three Weeks after the Operation.

An Observation of a Stone which weigh'd Four Ounces, that came off from the Bladder of a Girl of 18 Years of Age.

XI. I Can't omit the Relation of a very singular Case, which happen'd to *Ann Hughs*, a Girl of 18 Years of Age, Daughter to *Christopher Hughs*, a Hat-maker, in *Cardiff, Glamorganshire*. She sent for Mr. *Thornhill*, November 22. 1724. who desired me to go with him.

HER Case was an involuntary Excretion of Urine, which was occasion'd by a large Stone in the Bladder, that came off of itself.

IT was (as she said, and the People that were with her) about eight Days in the Passage, the End of it appearing sometimes so large, that the ignorant Neighbours suppos'd it to be the Head of her Thigh-bone coming out that Way. All that time the *Sphincter Vesicæ* was so relax'd, that the Urine came off insensibly, till, by chance, a violent Cough made the Stone force its Way, by tearing the *Urethra*, into the *Vagina*, and so it came out *October 29. 1724.* Its Figure was Oblong, and it weigh'd above four Ounces: It was a little broken at one End, which made us search the Bladder, to see for Fragments that might be left behind; but there were none to be found in the Bladder. The Stone had torn the *Urethra*, and came out by the *Vagina*, the external Orifice of the *Urethra* being entire.

Mr. *THORNHILL* was fond to undertake the Cure of this Girl, and I would gladly have assisted him, to try the utmost that Surgery could do in her Case; and accordingly we were proceeding to take Care of her; but in the Space of two Days time, some good People, not over-well disposed to the Interest of either of us, had infus'd such Doubts in her, as left her but little Faith in her Surgeon, and much less in her Physician; and so exasperated was she (though the Girl was poor, and pure Charity prompted us to take Care of her) that she came threatening us both to carry us before the Mayor, if the Stone was not return'd presently, which was then in a
Painter's

Painter's Hands, to take the Dimensions of it. She had her Stone next Day, and dispos'd of herself as she thought best. Mr. *Thornhill* tells me, that last *September*, 1725, she came to him perfectly well, without the involuntary Excretion of Urine, and told him that she had left it to its own Chance, no Surgeon having ever seen it. This is a very surprizing Cure by the Strength of Nature, without any Assistance. This Girl is a Wonder all over from first to last.

THERE have been Five or Six more Cut by Mr. *Thornhill*, one of which was Mr. *Blackmore* of *Ilfracomb* in *Devonshire*; aged 55, whose Case was very singular, and worthy of Observation. He was under the Care of my worthy Friend Dr. *Robert Chancy*. I had not Opportunity to be appriz'd of all the Symptoms that attended him; but shall give a short Account of what has been told me of his Case after the Operation. He had two large Stones, each of them bigger than a Hen's Egg. There was a considerable Loss of Blood in the Operation (a), and he soon complain'd of an acute Pain in his Wound,

(a) It is always necessary for the Operator to have a good Stiptic ready for the first Dressing, to prevent the Danger of an Hemorrhage which happen'd, in this Case, to a considerable Degree, before it was discover'd, the Operator having no fear or suspicion of such an Accident. Mr. *Pye* had a Patient that died of an Hemorrhage in the Hypogastrick Section; though in that Part of the Bladder where the Wound is made, the Vessels are commonly but Capillaries. Mr. *Pye* says, that this Hemorrhage was from a Vein that lay between the Skin and the Muscles; but it is more probable to be from the dilated Capillaries in the Bladder: For it is not to be suppos'd, that a Flux of Blood could happen from a Vein in that Place, to endanger the Life of the Patient, for many good Reasons in Anatomy and Surgery: When this has happen'd in a Part of the Bladder, where the Vessels are commonly so small that they can't be discern'd by the Eye, though injected, how much greater is the Chance, that it may be so, when the Incision is made on the Side of the Bladder, where the Vessels are always perceptible, and for the most part very conspicuous?

This is the only Objection of Consequence that I can think of, against the Lateral Section; for, by due Care and Caution, all other Inconveniences may be avoided or prevented, when that Operation is perform'd on the Footing of Dr. *Douglafs's* Description of Mr. *Chefelden's* Improvements.

and.

and the neighbouring Parts, which was follow'd with frequent Vomitings, Faintings and Singultus, which continued all the first Day. The second Day the threatning Symptoms abated, and nothing remarkable happen'd till the ninth Day, when the same violent Symptoms return'd, and continued near Twelve Hours. The tenth Day, there was a considerable Discharge of fabulous and gritty Matter, both from the Wound and by the *Urethra*: The *Inguina* and *Scrotum* were much excoriated by the Sharpness of the Urine, of which he complain'd exceedingly; he had frequent Returns of his old threatning Symptoms, during the whole Time of the Cure, it being near four Months after the Operation, before the Part was cicatriz'd. He died soon after.

THERE was one died the third Day after the Operation; when he was open'd, we observ'd a schirrous Tumour in his Bladder.

IN another (a Boy of 5 Years of Age, Son to Mr. Sedgdy, a Dissenting Minister at *Wareham* in *Dorsetshire*) there was an Adhesion of the Stone, on one Side, to the internal Coat of the Bladder, which Mr. *Thornhill* separated with his Finger, and when it was extracted, there was a Membrane stuck fast to that Side of the Stone which adher'd. This Boy had violent Pains in the Wound for some Hours after the Operation; a Paregoric gave him Ease, and the Cure was perform'd without any more bad Symptoms during the Course of it.

THERE was nothing particular in the Operation or Cure of any of the rest: In all of them, the Operator has given Proof of his Capacity, and has establish'd such a Character as
is

is commonly wish'd for by those of his Profession, who do their utmost to deserve it by an honest and industrious Application to Business.

THE foregoing Histories, and the many Cures of late perform'd by Mr. *Douglafs*, Mr. *Chefelden*, Dr. *Bamber*, &c. in the Operation of *Lithotomy*, above the *Os Pubis*, put an End to the Dispute, that Wounds in the Bladder are necessarily Mortal: So many recent Instances of Matters of Fact, cut off the Necessity of searching Authors for Cases of that Nature; that Evidence being the strongest, which is immediately the Subject of the Senses. However, to take off the Cavilling of such Surgeons, as incline to dispute that Matter, and to satisfy the Minds of inquisitive and understanding Patients, who are very much to be consider'd in this Affair, as their All depends on the Operation, when they must needs submit to it, and who are naturally jealous of Experiments and new Practices; I shall try to set the Matter in a clearer Light, and to make it more familiar to their Conceptions.

THE Ancients divided the Parts of the Body in *Partes Spermaticas*, *Sanguineas*, & *Mistas*.

THE *Spermatic* were call'd so, on account of their whitish Colour, and that they were suppos'd to be immediately form'd of the Seed; they were in Number, Eight, *viz.* a Bone, a Gristle, a Ligament, a Membrane, a Fibre, a Nerve, an Artery and a Vein: All of which, when they suffer'd by a Wound or loss of Substance, were said never to Regenerate or Repair that Loss, or rightly to unite, because the Matter of which they were compos'd, and the Virtue of the efficient

Cause being at an End, after the first Conformation of the Parts, the Loss could only be supplied by an intervening Callus, but with Difficulty, and in the Wounds of some of them (such as Membranes and Nerves) with the greatest Danger to the Life of the Patient.

THE *Sanguinae* or fleshy Parts, were the Muscles call'd *Sanguinae*, from their ruddy Colour; if wounded, they easily bred new Flesh, and heal'd up again, and they were suppos'd to be form'd from Blood.

THE Skin was the *Pars Mista*, suppos'd to be compos'd of both.

THE Wounds of Spermatic Parts being commonly observ'd to be dangerous, and the Body of the Bladder, when taken out and blown up, appearing to be Membranous and very thin in its Coats, it seems to have been suppos'd, that a Wound in it must needs prove Mortal, for the Want of Substance, from which a Callus might be form'd, and on account of the Obstacles which the Callus must needs meet, when forming from the continual Efflux of Urine by the Wound. It was also observ'd, that Wounds of the Bladder commonly were Mortal, which, probably, happen'd for the Reasons I before assign'd, *viz.* the Piercing of the *Peritonæum*, and the Symptoms thence arising; the ancient Surgeons being afraid to dilate the Wound, to give Vent to the *Pus* and Urine, because of the suppos'd Danger of increasing the Difficulty, by adding to the Wound in the Spermatic Part: It is no Wonder that the Ancients concluded from these Reasons, that Death most probably must ensue on Wounds of the
Bladder,

Bladder, and that from their Authority, the most Experienc'd of the Moderns have been very shy in their Attempts on the Operation of *Lithotomy* above the *Os Pubis*, where the Bladder must needs suffer in its Spermatic Part, and the most direful Symptoms were suppos'd to follow of course.

BUT in Answer to this, and to talk with the Ancients in their own Way ; There is too much Pains taken to make the Bladder seem Membranous; the over-stretching the Parts to the greatest Degree that animal Fibres can bear, without rending, is not a reasonable Method of judging the Truth of the Matter. The Bladder appears much otherwise in its natural Situation in a live Subject, and is plainly a firm, solid, fleshy Part, capable of great Dilatation, when forc'd out by its Contents, and contracting itself, *ad libitum*, with all the Power of a strong Muscle. 'Tis true, when it is very full, it is assisted in the Expulsion of the Urine, by the Action of the Muscles of the *Abdomen*, and more immediately by the *Musculi Recti* and *Pyramidales*; but the Assistance they give, is soon over, they being incapable to press upon the Bladder, when it is sunk so low as the Verge of the *Pelvis*; and after that, the remaining Urine contain'd in it, is totally expell'd by the intrinsic Force of its own muscular Fibres; which must be very great, as it is oblig'd to expel the Urine by a narrow Passage against the Resistance of the *Sphincter*, which is allow'd both by the Ancients and the Moderns, to be a very strong Muscle, which must certainly stop the Urine in its Passage, if it were not overcome by a stronger and more powerful Antagonist. (a).

(a) *Vid. Anatom. Cowper Tab. 44. Fig. 2. & Myotom. Ref. cap. 4. & ejusdem Myotom. reform. Tab. 18. Ritty's Treatise of the Urinary Passages, pag. 11.*

IT were trifling to suppose, that the Danger of the Spermatic Part should still occur from the Wound of that small Portion of the *Peritonæum*, which immediately suffers in the Operation, which is evidently of no more Consequence than to wound the *Membrana communis Musculorum*, provided the Incision does not reach above the *Urachus*; and the *Linea Alba* being of the same Contexture with the *Aponeurosis* of the *Biceps*, which covers the Muscles of the Arm from the Elbow to the Fingers, the Wounds of both are to be consider'd on the same Footing, only differing with respect to the Parts continuous to them; and every Body knows, that the Danger of a Wound in the *Aponeurosis* of the *Biceps*, or of the *Fascia Lata*, any where in the Leg or Thigh, is only where there is a Puncture, and the Wound is too small; and when the Tension is reliev'd by dilating the Orifice, it grows a fleshy Wound, which heals with common Care, or even of itself, without any Care at all. To be short, as the Bladder is prov'd to be for the most Part Muscular, throughout its whole Extent (a) and on its Fore-part, where the Operation is perform'd, it adheres strongly to the *Peritonæum*, and by means of it to the *Linea Alba*, and so to the *Musculi Recti*; all these Parts being thus continuous to each other, their Fibres suppurate together, and incarn and heal up, uniting in the same Cicatrix; the Truth of which is confirm'd by daily Experience.

THE little Glands on the internal Coat of the Bladder, make no Objection to the Operation; on the contrary, when

(a) Vid. Cowper *Anatom. & Myotom. reformat. loc. citat.* & Rutty *Treat. of the Urinary Passages, loco. citato* & p. 13.

it is perform'd, they are very assisting in the Cure, for so soon as the Suppuration comes on, and the Inflammation begins to abate, the nearest Glands to the Wound supply its Edges with the slimy *Mucus* which they Secern, which sheaths and defends them from the Acrimony of the Urine, and is as a Balsam to promote the Cure: And, considering the Advantage we now have (from a certain Knowledge of the Structure of the Parts) to avoid the Piercing of the *Peritonæum* in the Operation, I think there's no more Room left for Dispute on this Subject.

To conclude, The Ancients have been intirely in the Wrong in their Sentiments of the Anatomy and Substance of the Bladder; and it seems now to be requir'd of us to drop them, and their Reasonings on that Subject, and to try to improve, as far as we can, on our present Experience.

THO' this Essay has run out to a greater Length than I at first expected, there are a few Things still occur, which must not be pass'd over with Silence. In the first Place, the great *Rossetus* must be mention'd with due Regard to his Merit. He was the first who propos'd the Hypogastric Section, about 130 Years ago, and argues for it with great Force of Reason, and like a true Son of Art. By the Hints we have from him, it is plain he has been better acquainted with the Anatomy of the Parts concern'd in that Operation, than the nicest Anatomist since his Days, till now: Though he does not write with that Perspicuity which one could wish, nor does he shew he was rightly aware of the Danger of cutting the *Peritonæum* in the Manner as has happen'd.

FROM his Time there has been nothing but Darkneſs and Doubt concerning this Operation, which has ſcarce ever been mention'd with a View to bring it into Practice, till *January 23* * 1717-18, a Paper of Dr. *James Douglas*, relating to the High Operation for the Stone in the Bladder, was read before the *Royal Society*, in which he demonſtrated from the Anatomy of the Parts, that it might be perform'd with Safety. And a few Years after, Mr. *John Douglas* (Brother to the Doctor) who has the Character of an excellent Surgeon, and a nice Anatomist, undertook the Operation, and perform'd it with Succeſs: He has introduc'd it in ſuch a Manner, and under ſuch Circumſtances, as make it entirely his own, as much as if *Roffetus* had never thought of it; and it is but Juſtice that it ſhould go in his Name. He has wrote a valuable Treatiſe, publiſh'd 1723, in which he deſcribes the other Methods of cutting for the Stone, and remarks their Inconveniencies with great Accuracy, and formally Answers all Objections againſt his new Method.

Mr. *CHESELDEN*, a noted Surgeon, and Anatomist of St. *Thomas's* Hoſpital, has alſo made ſome Improvements in this Operation, and has publiſh'd a Treatiſe 1723, on the ſame Subject: Both theſe Treatiſes ſhould be read by every Body who inclines to inform himſelf of this new Method, and I particularly recommend them, having ſeldom

* As there is no Man living more thoroughly acquainted with the moſt hidden Niceties in Anatomy than Dr. *Douglas*, there is no Doubt we ſhall have a full and exact Deſcription of the Parts, to the Satisfaction of every Body, when this Paper is publiſh'd, or the Treatiſe on this Subject, with which the Doctor has promis'd to oblige the World. It will, then, be a particular Pleaſure to me, to have the Failings of this Eſſay ſet to rights by ſo good a Judge.

insisted on any thing material in this Essay, that is mention'd by them.

THE next Year came out, some Observations on the several Methods of *Lithotomy*, by Mr. *Pye*, a Surgeon of great Reputation in the City of *Bristol*: As this contains some Objections against the new Method, which have not come under the View of *Rossetus*, nor of Mr. *Douglas*, I shall take the Liberty to consider them with all possible Impartiality.

HIS first Observation is Pag. 11. “ Of a Man under violent
 “ Torture from the Stone; a total Suppression of Urine, and
 “ a large Tumour possessing the *Epigastrium* (he means the
 “ *Hypogastrium*): As he could not pass the *Catheter*, a Clyster
 “ was administer'd, which gave some Ease; but the Patient
 “ died that Night. When he open'd him, he made a
 “ Puncture in the Tumour, on which a large Quantity of
 “ Pus and Urine follow'd, and tracing the *Sinus* down into
 “ the Bladder, he extracted a hard pointed Stone, of the Size
 “ of a Walnut. The Bladder was Mortified; upon examin-
 “ ing into the Neck of it, he found the *Sphincter* hard, and
 “ strongly contracted; but forcing his Finger through, felt
 “ another Stone at the beginning of the *Urethra*; he at-
 “ tempted with his Staff to push it back, but in vain, and it
 “ was with the greatest Difficulty pass'd by; he cut on the
 “ Staff and thrust it out; it was of the Bigness of a Mulberry,
 “ globular and pointed.

HE says, what is remarkable in this Case, is, “ That had
 “ this unhappy Wretch been in such a State, as to have ad-
 “ mitted

“mitted the Operation, nothing but the *Minor Apparatus* in
 “the lower Way could have succeeded.

IN this Case, the first Indication implied the immediate Necessity of relieving the Patient of the Suppression of Urine, which (if the *Catheter* could not be pass'd, and the Clyster had no Effect) was to be done without Delay, by a Puncture with the Trocar in the *Hypogastrium* into the Bladder; but there being a large fluctuating Tumour there, it was first to be laid open and sufficiently dilated, to discharge the Matter; and as the Urine came mixt with the *Pus*, which shew'd the Bladder to be pierc'd by the Imposthume, the tracing and dilating the *Sinus* (which is the Business and Duty of a Surgeon) of course led into the Bladder, and the Stone must have been found and extracted without Difficulty, the Apostem pointing out the Method to the Operator; and then the Ulcer in the Bladder and the Integuments was afterwards to be taken care of. *S. A.*

THEN the other Stone which lay in the Bulb of the *Urethra*, was to be taken out by a simple Incision upon the Stone through the Coats of the *Urethra*, which would have heal'd by the first Intension, as the Urine must have come all the other Way; And this is the only rational Method that can be propos'd in such a Case, and it might have good Effect, if the Bladder was not Mortified, which no Surgeon can be sure of, till he comes at it to examine it; and, therefore, is to do his best for his Patient, according to the Symptoms and Appearances he has to guide him, and is to walk by.

BUT suppose there had been no fluctuating Tumour on the *Hypogastrium*, and no Mortification in the Bladder; but all the Parts perfectly Sound, and a Suppression of Urine, from a Stone in the beginning of the *Urethra*, and at the same time another Stone lodg'd in the Bladder, which was to be taken out by the Operation; could no Method succeed, but the *Minor Apparatus* in the lower Way? I must own, I differ from this Way of Thinking; to me it seems much otherwise; the cutting for a Stone in the *Urethra*, and for one in the Bladder, being two very different Operations, the one entirely independent on the other.

THE Operation for a Stone in the *Urethra* is perform'd as above mention'd, by a simple Incision upon the Body of the Stone, through the Substance of the *Urethra*, which should be large enough to let the Stone come out with Ease, and then the Operation is over, which is done without the least Danger to the Life of the Patient, and the Part heals up with Ease, if due Care be taken in the Cure. When the Stone in the *Urethra* is taken out, the Bladder and its *Sphincter*, and the Stone that is within it, are all in *Statu quo*, and it is, to all Intents and Purposes, as much as ever, at the Will of the Operator to extract the Stone by what Method he thinks most proper: And the same (a) Objections, both against the *major* and *minor Apparatus*, are still subsisting in their full Force, as if there was no Wound in the *Urethra*.

(a) Vide Mr. Douglas on the Inconveniencies of cutting on the Staff and on the Gripe.

I CANNOT account for Mr. *Pye's* Assertion, if it is not that he may suppose, that by cutting on the Gripe, both the Stone in the Bladder and that in the *Urethra*, may be extracted by one and the same Wound ; which is a very great Mistake ; for in the *minor Apparatus*, the *Urethra* is not touch'd, and if, by Compression and Management, the Stone in the *Urethra* could be so forc'd on one Side, as to bear a little upon the Tumour in *Peritonæa*, occasion'd by the Stone in the Bladder, an Incision on both at the same time, I think is impracticable, but most certainly it must be very awkward, unwarrantable and dangerous.

THE next Observation is Page 12. “ Of a Gentleman, “ aged 75, whom he open'd after his Death, and found his “ Bladder free from Inflammation or Hardness; but no less “ than Thirty-three Stones of different Sizes, from three “ Quarters of an Inch Diameter, to a Quarter, the least of “ them, all perfectly round and polish'd ; and says, That had “ he been so happy as to have cut him, those Stones would “ have follow'd the least Dilatation of the *Sphincter*; and “ that this is instanc'd, to shew the Preference the old “ Methods must have had here, and that to have gone Thirty- “ three times down into the Bladder, which must have been “ done in the New Way, would have been very tedious, and “ full of Hazard.”

IN Answer to this, though sometimes when a Stone is extracted, a small one will follow of itself, yet this is not at all to be depended on. I once saw five Stones extracted from one Patient at the same time, and one of the Five came out in that Manner :

Manner: The rest were extracted at different Times, and such Work there was in turning and searching for them, as a prudent Surgeon would avoid, if possible. I shall allow, that twelve Times going into the Bladder the lower Way, might bring off the Thirty-three Stones as mention'd, and 'tis scarce possible so small a Number of Times should perform it; and I do affirm, That any one of the twelve Times going into the Bladder, is evidently more dangerous than all the Thirty-three Times by the New Method (a), as the Incision may be large enough to introduce the Forceps softly upon the Finger, which guides them to lay hold of the Stones, one after another, without Trouble or Contusion of the Body of the Bladder; and if the Lips of the Wound should suffer a little by the reiterated Pressure, a few slight Scarifications would give Freedom to the Circulation, and take off all Danger of Contusion; And what still makes more for the New Method, all or most of the Thirty-three Stones might probably have been extracted with the Fingers, without the Help of the Forceps.

AND as there is a Certainty in the Search of the Bladder, in the New Way, by the Finger, which the smallest of the Stones could not escape; there could be no Fear of leaving a Stone behind, which has been done after a very nice Search in the lower Way, by some of the best Operators; the Ingenious Mr. Pye having once had the Misfortune of the same Accident, in a very odd Manner, and the Chance was very great, that it might be so in this Case, where so many were to be extracted.

(a) *Vide Mr. Douglas, on the Inconveniencies of cutting on the Staff and on the Gripe.*

ADD to this, that by cutting the High Way, an Inconveniency is shunn'd, which is mention'd by Mr. *Cowper* in his Anatomy, viz. the Slipping the Conductor between the *Sphincter Vesicæ* and the straight Gut, and missing the Groove of the Staff to direct the Way into the Bladder, so that it is not possible to come at the Stone to extract it; but the Patient being cut and mangled to no Purpose, is left to dye in Misery: Though this is a Blunder the least to be excus'd of any in the whole Practice of Surgery, and is never suppos'd to happen in the Hands of a Man of real Knowledge or Advertency, yet it is not amiss to take Notice of it. Mr. *Pye* knows it has sometimes fallen out, having himself been very lately a Witness to it.

Mr. *PYE's* Remark, Page 20. on the Operation perform'd on the young Lad, is grounded on a Mistake of the Structure of the Parts, which led him to over-look the Danger of making the Incision downwards from the *Os Pubis*: The Bladder, indeed, if fairly injected, is very inviting, and favours it too much; but the great Art in the Operation, is to have Prudence enough to avoid the Bait, which can't be done with Certainty, if the Edge of the Knife be turn'd upwards to the *Peritonæum*.

I HAVE been told, that by this Practice, the Intestines have been cut to such a Degree, that the Excrements have come out at the Wound, upon the Spot, before the Operation could be finish'd, and, considering the Violence with which the Intestines rush down when the *Peritonæum* is wounded, 'tis much if the Operator can always retire his Hand so quick with
the

the Scalpel, but that they may sometimes be forc'd on the Edge of it, and so prove the Prelude to a sudden Catastrophe.

THE Miscarriage of Mr. *Pye's* Operation, Page 21, on a poor Fellow at *Wells* in *Somersetshire*, was owing to a morbid State of the Bladder, to be discover'd with Ease:
 “ For upon Search, he found a large Stone, his Bladder thick
 “ and hard, strongly contracted to it, a *Stillicidium Urinæ*
 “ constant on him, and full of fabulous Matter; and when
 “ he made the Injection, he could not force in above two
 “ Ounces: there appear'd a small Turgescency on one Side the
 “ *Linea Alba*, just above the *Os Pubis*; he divided the Skin,
 “ &c. and the Turgescency appear'd (such as it was) very
 “ visible, it being that Part only of the Bladder, which was
 “ capable of Extension.”

HERE are all the demonstrative Signs of a schirrous Affection of the Bladder to the greatest Degree; in which Case there was no Prospect of Success in the Operation, which was perform'd directly against Mr. *Pye's* most excellent (a) Rules in the Preamble to his Observations:

Q

HIS

(a) “ And as this Operation, at the best, is too uncertain, and the only
 “ Aim of the Surgeon ought to be the Relief and Safety of the Afflicted,
 “ so it highly behoves him to examine well the Symptoms of the Patient,
 “ before he applies the Knife; nor should he ever presume to do it, without
 “ the Favour of a good Prognostic: Mr. *Pye's* Observ. Pag. 8.

“ Did we weigh the Reasons he (*viz. Hyppocrates*) had for these Judg-
 “ ments he has made in this Distemper, we should soon find, that we
 “ ought not to attempt such Operations, but upon the most mature
 “ Thought: Mr. *Pye's* Observ. Pag. 10.

“ The Solemnity of his Oath in this Particular, shews, that he had the
 “ most tender Concern for the Good of Mankind, when he enjoyn'd it on
 “ his Pupils; lest an Over-fondness of being an Operator, should tempt
 “ any of them to trifle with Life. *Ibid.*

“ Li

HIS next Observation is Page 22, “ Where in the Opera-
 “ tion the Stone broke off in the Middle, just under the Os
 “ Pubis, the remaining and biggest Part lay in *Perinæo*, the
 “ Neck of the Bladder strongly contracted round it, which he
 “ forc’d up again with the Fore-finger, introduc’d in *Ano*, and
 “ then extracted it.

THIS Operation adds very much to the Credit of the
 New Method, for though there was some Force us’d to press
 up the Stone from the *Sphincter*; “ Yet as to his Wound and
 “ Belly, he never had any Uneasiness there, after the first Three
 “ Days, and when he died, the One and twentieth after the
 “ Operation, and was open’d, Mr. *Pye* found the Bladder,
 “ and Parts adjacent, free from any Inflammation, and the
 “ Wound incarn’d with the Muscles of the Belly; and yet he
 “ says, That the lesser Operation in the lower Way, would
 “ have been perform’d with the greatest Ease in this Boy, and
 “ had the Advantage of any other Method.

UPON what Reasons this Assertion is grounded, is above
 my Comprehension; for to be sure, Mr. *Pye* does not think
 in his Heart, that, had the Operation been perform’d in that
 Manner, the wounded Parts would have been so far recover’d
 by the Twenty-first Day after it, (a) abstracting from the other
 Incon-

“ In his *Præ-notiones* he tells us, how fatal some Diseases of the Bladder
 “ are; from whence we may most justly infer, Wounds, in such distemper’d
 “ Cases, must inevitably draw on a speedy Death. *Ibid.*

“ *Celsus* has his Cautions too; and *Desperatos minime attingendos esse*, is
 “ his Charge; *Ne infamentur Remedia, quæ multis Saluti fuerunt.*” *Ibid.*

(a). Mr. *Pye* has a late Example, to oppose to this, of a Boy cut on the
 Staff, who was about the Streets the 12th Day after the Operation: As the
 Case serves to illustrate the Advantages of a right Preparation of the Body
 before

Inconveniencies that might have follow'd it; and as in this, all the suffering Parts were sound and well, Mr. *Pye* would oblige the World, if he would take the Trouble to make it appear, how it is possible that any other Method should have the Advantage of it.

HIS

before the Operation, it must not be suppress'd from the Knowledge of the World.

Last October, 1725, Mr. *Thornhill* had a Letter from *Wellington* in *Somersetshire*, concerning a Boy of Eleven Years of Age, who had been afflicted with a Stone in the Bladder from his Infancy. In his Answer, he desir'd the Boy might be kept upon a low Diet, abstaining entirely from Flesh-Meats and strong Liquors, and that in the Spring he might be sent to *Bristol*, on account of the Operation. When he came last January, 1725-26, Mr. *Thornhill* shew'd him to me: He was of a Stature much lower than what is usual at that Age, his Limbs and Face were emaciated, and his Belly swell'd to a very great Degree, in the Manner as happens often to Children in a bad Habit of Body, but with greater Tension; and on pressing the *Regio Pubis*, there was a Hardness to be felt in the Bottom of the Bladder, and immediately some Drops of Matter came from the *Penis*. I join'd with Mr. *Thornhill* in the Opinion, that he was by no means a fit Subject for the Operation, and, therefore, advis'd him to a Regimen, to prepare him for it: His Food was order'd to be chiefly of Milk, and he took some Bolus's with Calomel, which were sometimes purg'd off with Manna and *Epsom* Salts, and at other-times suffer'd to continue in the Habit till they work'd off insensibly. In this Manner he had been prepar'd for a Month: When Mr. *Thornhill* desir'd me again to look on him: The Tension of his Belly was then gone off, and the Swelling somewhat diminish'd; but still appear'd too much: The Hardness in the *Regio Pubis* was lessen'd, but not quite gone, and on pressing it, the Pus came still in Drops from the *Penis*; though he was much better than before, yet the Symptoms were not very inviting for the Operation, and though the Pus might come from a superficial Ulcer in the inner Coat of the Bladder, which might be of no Consequence, yet considering that the Hardness in the *Regio Pubis* was not quite gone, I did not think it prudent to cut him (which was intended in the High Way) without a farther Preparation, to which there was the greatest Encouragement from the visible Effects that already appear'd of what had been done. For these Reasons, it was my Opinion (to which Mr. *Thornhill* agreed) that he should be sent Home in the Country, to be kept two or three Months longer on a Milk Diet, and then to return, as we hop'd, thoroughly prepar'd for the Operation. It was Thursday Morning, that he was dismiss'd by Mr. *Thornhill* with this View, and the Sunday following we were surpriz'd with the News, that he had been cut on the Staff that Morning by Mr. *Pye*, who had the Pleasure and Credit of a singular Cure, the Patient being well about the Streets the Twelfth Day after the Operation.

This

HIS next Objection is taken from the Composition and Formation of soft, rough Stones ; of which, when he has given some Account, he says, Page 24, “ How far this Ob-
 “ fervation may be carried in Objection to *Rossetus's* Method,
 “ I shall not presume to say ; yet every one knows, that de-
 “ pending Cavities are the greatest Obstructions we meet with
 “ in our Practice ; and I believe the Relapses of some ne-
 “ phritic Patients, after the Operation has succeeded, take
 “ their Rise from that Saburra, which must be collected, even
 “ in the time of Cure.

“ And whether the Dilatation of the *Sphincter*, the de-
 “ pending Orifice, &c. as in the old Ways, may not, in
 “ such Constitutions, have happier Effects, let the impartial
 “ Artist consider.

‘TIS a just Observation, that depending Cavities are the greatest Obstructions in the Practice of Surgery ; but then they are præternatural Cavities, when the opening of an Imposthume has been delay’d so long, as to give time to the Matter to insinuate itself in the Interstices of the Muscles, or between the Muscles and the Skin ; or, where a Wound or an Ulcer is not sufficiently dilated, to give Vent to the Matter, as fast as it is thrown off by the Vessels, in the Suppuration ; in which

This extraordinary Instance, I think, is no reasonable Objection against what I have said, as there is not one of a Thousand that can expect the same good Fortune, in whatever Way the Operation may be perform’d. It only serves to illustrate the Advantages of a due Preparation, and to shew that even a lesser Degree of Soundness than a wary Practitioner would think necessary for a less hazardous Operation, may sometimes be sufficient to help Nature to struggle through the Danger she may be thrown into by a daring Operator.

Case,

Case, it distends and inflames the Parts, which occasions a new Fermentation in the *Pus*, which corrodes the Membranes of the Muscles, and insinuates itself farther between them, distending the Parts more and more, and enlarging the Cavity, till the Orifice of the Ulcer is made large, to give free Vent to the Matter; and this, perhaps, may be dangerous on account of the Vicinity of large Vessels or Tendons, and then it may be necessary to make a Counter-incision or a depending Orifice, in such a Place as the Matter may have liberty to flow out with Ease, as fast as it is bred, and then the Ulcer dries and heals with common Management.

THIS is the Truth of the Case in depending Cavities, which sometimes are mismanag'd, so as to prove Fistulous; but whoever dream'd of the Bladder's being suppos'd to be a depending Cavity of this Nature?

THE Bladder is not to be consider'd as a depending Cavity from an Imposthume, a Wound, or an Ulcer, and is in no manner subject to such Inconveniencies. It is form'd, by Nature, a Cavity fit to receive the Urine, and to retain it, and expel it at Pleasure, and is sufficiently guarded against its corroding Salts, by the *Mucus* secreted by its internal Glands; and as it cannot, in itself, suffer from the Urine, neither can the Wound in it, to so great a Degree as in the lower Methods; for there must be some time allow'd after every Dressing, before the Urine can fill the Bladder so much as to rise to the Lips of the Wound, and so far the Course of Nature in the Animal Oeconomy is left undisturb'd to incarn the Ulcer: *Ulceris curatio est exsiccatio*; and by this means it is, at least, dry for some time every Day, there being no such Truce in the

lower Methods, where the suffering Parts are incessantly bedew'd with the Urine as it drops, *Stillatim*, from the *Ureters* into the Bladder.

'TILL the Suppuration be pretty far advanc'd, there is as free a Passage for the *Saburra* that may come from the Kidneys to the Bladder, by turning the Patient upon his Belly at each Dressing, that the Grit and Slime may be wash'd out at the Wound with the Urine, as there is in the lower Methods; and if there be any remaining in the Bladder after the Cure, Care is to be taken, by Diluting and Diuretic Liquors drank plentifully, to wash it away by the *Urethra*; and this is all that can be done, when it so happens in the lower Methods, which have been too often follow'd with such Misfortunes: But the true and regular Way to prevent such Accidents, is to take Care, by a previous Regimen, to dilute and cool the Blood, and break its Cohesions; and if this is perform'd as it should be, and carefully persisted in during the Cure, it is not probable that the Bladder would be loaded with topacheous Grit, the Aliments not being stor'd with such Substances as can afford it.

THERE'S a particular Advantage in the New Method, to extract soft, rough Stones, as the Incision may be made large enough to take them out without breaking, which seldom happens in any of the Old Methods; and, indeed, they are of necessity press'd so hard by the Forceps in the Operation, that they can scarce miss to be broken on such an Occasion. I have seen the Forceps introduc'd five times into the Bladder to bring out broken Pieces of the Stone, and then the Spoon three or four times to bring off the crumbled Grit; which might
have

have been all avoided by one single Extraction of the Stone whole and entire in the New Method.

I CAN think but of one Case that can happen, in which it may be necessary to perform the Operation in the Old Way; and that is, when a Stone is so engag'd in the Sphincter, that it cannot be mov'd (for if it could be push'd back into the Bladder, as in the Case of Mr. *Pye's* Patient, Page 22. of his Observations, 'tis plain the New Method would be preferable) in such Case there is no choice, but an absolute Necessity to cut upon the Gripe, or to leave the Patient to die in Torture; but I doubt whether this Case has ever happen'd to any *Lithotomist* in *Great Britain*; and as there is but a bare Possibility of such an Accident, it must fall out so rarely, that 'tis scarce to be minded.



A LET-



A LETTER from Mr. Macgill, a most ingenious and Skilful Surgeon of Edinburgh, to Dr. James Douglas, Physician at London; containing some curious and useful Observations in Lithotomy performed after the High Way.

S I R,

Edinburgh, October 12. 1723.

I Sent you last Week an exact Copy in Plaister of *Paris*, of the two Gravel-Stones I extracted by the High Operation, out of the Bladder of the old Gentleman, mentioned in the beginning of Mr. *Cheselden's* late Book. I had written to Doctor *James Campbel* about a Patient of his and mine, and as a Piece of News I told him of that Operation, and its Success, without any Intention of its being publish'd. I have nothing to add to that Account, but that the Patient had been for Seven Years grievously afflicted with these Stones, and that he was reduced to a very low and feeble State, so as to be hardly able to walk. During the eight Days immediately preceding the Day of the Operation, he vomited almost every thing he took as Nourishment, and was scarce an Hour free from the Hiccough: Only the Day of the Operation these Symptoms abated, and Doctor *Drummond*, Jun. his Physician, a Gentleman of great Merit, with much ado, prevail'd on me to perform it: And, indeed, after it, these Symptoms decreas'd daily, his Stomach retain'd every thing he took, and the Hiccough gave him no Trouble, except a little after his waking from Sleep, and in Ten Days after it, left him intirely.

The

The Stone mark'd Number I. lay cross the Beginning of the urinary Passage, and weighed four Ounces three Drachms and a Half. The other Stone, mark'd Number II. weighed four Ounces two Drachms and a Half, and stood perpendicular on the first Stone, with its End in the Hollow of its superior Side, the other End reaching to the Bottom of the Bladder; so that after I had made the Incision as I judged sufficiently big, I was obliged, from this Situation of the Stones, to enlarge it, by slipping my Finger betwixt the Stone and Bladder, and with a Pair of Scissars so directed, to cut it open the Length of the *Urachus*, and then with Ease I got them out. The black Lines on the Stones will show you their Situation. From what I have said, this poor Gentleman, in all appearance, would have perish'd by any of the other Operations of *Lithotomy*; whereas by this, he was pull'd out of the Jaws of Death, and enjoys good Health, and is hearty, better flesh'd, and stronger than he had been a good many Years before. The World can never be thankful enough to you and your Brother, for your judicious Courage in advising and executing a Piece of Surgery, so beneficial and easy to all those afflicted with this terrible Disease.

WHEN I had the Honour to be with you in *London*, *February* last, I told you I had performed the High Operation about the End of the *December* preceding, on a Boy of Thirteen Years; but of a Growth no bigger than Boys used to be at Nine. He was much emaciated, stoop'd when he walk'd, so as to walk double; for a Year before, he could not lie on his Back. His Belly was big and hard, like that of one troubled with Worms. When I injected his Bladder, a pelucid Swelling arose round his Anus, which alarm'd me. I

held the Catheter myself, so that I was certain his Bladder suffer'd no Violence by its Extremity, for then I had not the *Apparatus* for an Ox's *Ureter*. I made the Incision easily and well, and took out of his Bladder a Stone, weighing two Ounces and a Drachm, one End of which was full of sharp Prickles, besides a good many others were on the other Parts of its Surface, though not so sharp nor so thick set. This, with his complaining constantly of a Pain in his Fundament for the first Five or Six Days, although the watery Swelling disappear'd the first Day, and a pretty large Quantity of a bloody Sanies, which the fourth Day he voided by the *Anus*, gave me ground to believe, that his Bladder had been perforated towards the *Intestinum Rectum*, and that this had made his lying on his Back so painful, and given way to the Liquor injected, to occasion the pellucid Swelling. I freely own, that being my first Attempt, and not having any Rule to judge by, except that of the Fullness above the *Os Pubis*, and which could not so easily be felt, because of the Bigness and Hardness above-mentioned, it's probable I injected too great a Quantity for a Bladder so diseas'd. I was oblig'd to leave him the Fifteenth Day. The Twentieth he voided a Worm Half a Yard in length. He had a second Eruption of bloody Sanies by the *Anus*: But in spite of all these Things, he left this Place Eight Weeks after the Operation, perfectly well, the Wound being firmly cicatriz'd, and he without any Complaint. I had almost forgot to tell you, that the very first Night he lay on his Back without any Uneasiness from that Posture.

THE Fourteenth of *August* last, I perform'd the High Operation on a Man aged 35 Years. He had been troubled
with

with Symptoms of a Stone in his Bladder, from the Time he could remember any thing. I made the Incision with the greatest Facility ; but to my Surprise, in searching for the Stone, I found the Bigness of a large Walnut towards the bottom of the Bladder ; but it was of a Piece with a much larger Part lying under the Hollow of the *Os Pubis*, and spread laterally, with so great a Constriction of that Part of the Bladder, that I could not introduce the thinnest Spatula betwixt the Stone and it. Doctor *Drummond*, President of our College of Physicians, and four Surgeons were present, each of whom I caus'd to feel its Shape and fixed Situation : I then tried to extract it by grasping that Part of it that was towards the Bottom of the Bladder with a Tenette : It broke off from the rest of its Body, leaving the remaining Lump, which, indeed, was the Bulk of the Stone, as fix'd as ever. I caus'd one of the Surgeons present, to introduce two Fingers into the *Anus*, to press the Stone ; but to no manner of Purpose ; it did not give the least way : It was not in my Power to introduce any thing to cut the constricted Bladder under the *Os Pubis*, and, indeed, all my Attempts, as well as those of the other Surgeons were vain. The seventh Day after, I attempted again to extract it ; but with as little Success as at first. The poor Man died the Thirteenth Day. Next Day I went to take out the Stone, and that I might have the less Obstacle, I cut off the *Musculi Recti* from the *Os Pubis*, and us'd all my Endeavours, but without effect, until I saw'd off the *Os Pubis*. The Stone had lain a great many Years in the Neck of his Bladder, and the Bladder had constricted itself above the Shoulders of the great Lump, and which were scarce so high as the superior Edge of the *Os Pubis*, round the Neck of that Part which I mentioned before, to be of the Bigness of
a large

a large Walnut, and which broke off from the rest of the Stone. Besides, a little lower under the Hollow of the *Os Pubis*, there was an irregular Furrow quite round the Stone, about a Line in Depth, where the Bladder made a second insuperable Constriction, and from this Furrow the Stone spread broader towards its inferior Part, as it did upwards towards the Superior. The Stone, although of the lightest Kind, now weighs five Ounces. Although the Injection had Force enough to make its way to the Bottom of the Bladder, by some Inequalities on the constricted Part; after the Operation, he pass'd his Urine by the Yard, the superior Constriction of the Bladder round the Shoulders of the Stone, being such, that his Urine found the easiest Passage to be that of his Yard. From this Account it's plain to me, that this Stone could not be extracted any way. I mean either by the High Operation, *Johannes de Romanis's* Manner, or by the lesser *Apparatus*. I am now using my Endeavour to procure the Stone from the Widow: If I prevail I'll send it to *London*; if not, I'll send a Copy of it in *Paris* Plaister.

THE same Fifteenth of *August*, I perform'd the High Operation on a Boy of Eight Years, and I extracted out of his Bladder, a Stone of the bigness of a large Nutmeg. He was in some Danger from the Folly of his Mother, who gave him the Day after the Operation, a Quartern of Sherry as a Cordial, and to mend the Matter, she gave him the fourth Day as many raw Onions as he could eat: However, he recovered and is gone Home to *Glasgow* quite cured. Some Days after the Operation, the Pledgits apply'd to his Wound when taken off, were pretty thick cover'd with small Stones, of the Bigness of Mustard-seeds; they had come down from his
Kidneys

Kidneys after the Operation, for then there was nothing of that Kind in his Bladder.

THESE are all the Times I have yet perform'd this noble Operation. I have faithfully told you my Successes as well as my Disappointment, and I have mentioned nothing but what was done in the Presence of Physicians and Surgeons of good Reputation, and who are ready to vouch every thing I have said.

YOU'LL remember I told you in *February* last, that the Method I us'd in making my Incision, was to lay the *Linea Alba* bare, and to cut betwixt the Pyramidal Muscles until I felt the distended Bladder; that then I cautiously plung'd a straight Bistoury, with its Back towards the *Os Pubis*, its Point sloaping downwards towards the Neck of the Bladder; that as soon as I saw the Water spurt out, I rais'd my Bistoury to a Perpendicular, and made one Incision upwards, big enough easily to admit my Finger; that I then pull'd out the Bistoury and put my Finger into the Bladder, and on my Finger, with a pair of crooked Scissars, made the Incision of what Bigness I had a mind, by cutting the Bladder and *Linea Alba* at the same Time. Mr. *Chefelden* was pleas'd to send me a Copy of his Book where he describes his Method; but I still think my Way more simple, more expeditious, and as safe. I am certain that I have found it as easy all the Four times I did it, as I could wish any thing to be, and it is certainly as safe as any Method that can be contriv'd.

I SEND you the first Edition of the *Edinburgh Dispensatory*; I had great Difficulty to procure it, it's so scarce.

I SEND you likewise a small Stone, mark'd N^o. 3. grown round with Hair ; as also the little *Fætus* I promis'd you at *London*.

I AM quite weary with writing this long Letter. I will in a Week or Two, tell you how I came by the Two last Things, and answer the Question you ask'd me about our formerly having used the Tincture of *Black Hellebore*. The Person that delivers you the Box, was recommended to me by our Lord Provost ; he's bred a Surgeon ; it will be generous in you to shew him a little Favour.

I am,

S I R,

Your Most Faithful,

And Obliged Servant,

JOHN MACGILL.

*Pray let me be honoured with hearing
from you.*



Fig. 1. ma



Fig. 2. da



The EXPLANATION of the Two Figures in the Copper-Plate.

FIG. I.



Represents the *Vesica Urinaria*, or *Bladder of Urine*, raised up above the *Os Pubis*, as it is in the Body when filled with Water, or distended with Wind, before the Operation.

1. *The Umbilicus, or Navel, in its Place.*
2. *The Linea Alba, which is nothing but part of the Tendons of the Two Musculi Obliqui and Transversalis appearing between the Division of the Two Musculi Recti Abdominis.*
3. *The fleshy Part of the Musculus obliq. ext.*
4. *The Tendonous Part of the same.*
5. *The Tendons of these two Muscles adhering to one another, cut off from the Os Pubis, and thrown back.*
6. *Part of the Musculus Rectus at the Side of the Navel.*
7. *Some Part of the same cut off from the Os Pubis, and drawn up.*
8. *The Musculus Pyramidalis cut off from the Bone, and drawn to one Side.*
9. *The Bladder of Urine raised up above the Os Pubis, and laid bare, in whose Middle the Wound is made to come at the Stone.*
10. *Part of the external Lamina of the Periton. cut through, separated from the muscular Coat of the Bladder, and rolled back to one Side.*

N. B. These

N. B. These are all the Parts cut in this Manner of extracting a Stone out of the Bladder. These that follow are no ways concerned in the Operation, viz.

11. *The Processus Peritonæi Vaginalis.*
12. *The Os Pubis.*
13. *The great Protuberance of the Ischion.*
14. *The Edge of the Acetabulum Coxendicis.*
15. *Part of the Head of the Os Femoris.*
16. *The Ligamentum Teres.*

N. B. I have observed above 20 Years ago, that this round Ligament does not serve to keep the Head of the Bone in the great Cavity, and thereby strengthen the Articulation; for as soon as the membranous Ligament is divided, the Head falls out beyond the *Margo* or Brim of this deep Hollow, as plainly appears by this Figure.

17. *The Penis divested of all its external Integuments, and drawn out.*
18. *Its Ligament that connects it to the Os Pubis.*
19. *The Glans.*
20. *The Præputium cut open and laid back.*
21. *The Urethra.*
22. *The Muscle called Erector Penis.*
23. *The Muscle called Accelerator Urinæ; but inasmuch as I have long ago discovered its true Origine to be from the thick Coat of the Corpora Cavernosa at the joining of the Crura, and its Termination, to be in a middle Tendon, with its fellow on the Back of the Cavum Ovale or Bulb of the Urethra, I name it from its Use Constrictor Urethræ.*
24. *Part of the Intestinum Rectum, with its Sphincter.*

F I G. II.

In this are represented the Two great Stones extracted by Mr. Macgill, the one standing upon the other.

F I N I S.

